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JOURNAL

of the

INDIAN MEDICAL ASSOCIATION

VOLUME 36 NUMBER 6 CALCUTTA MARCH 16, 1961

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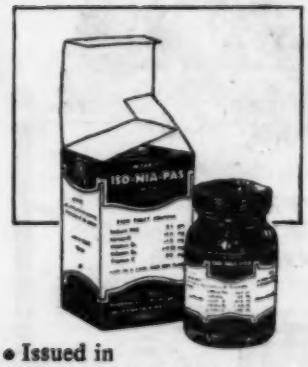

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NOTICE

The Editorial Office and the Advertisement and the Accounts Sections of the Journal of the Indian Medical Association have been removed to 53, Creek Row, Calcutta 14 from March 1961. The Circulation Section dealing with despatch of Journals, however, continues to remain at the old office at 23, Samavaya Mansions, Calcutta 13.

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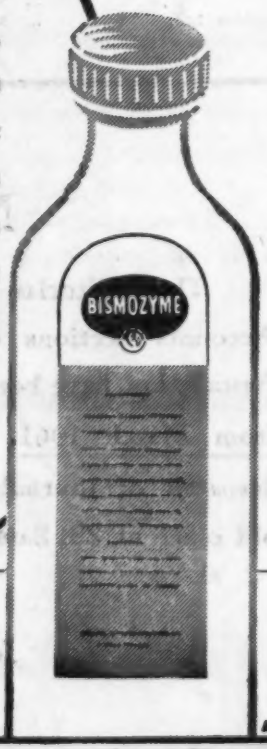

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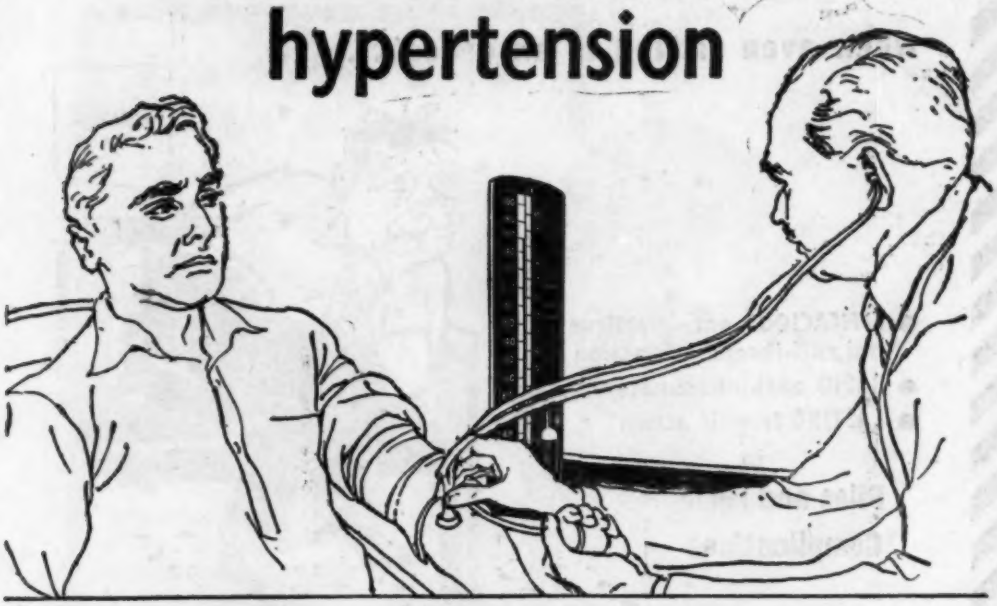

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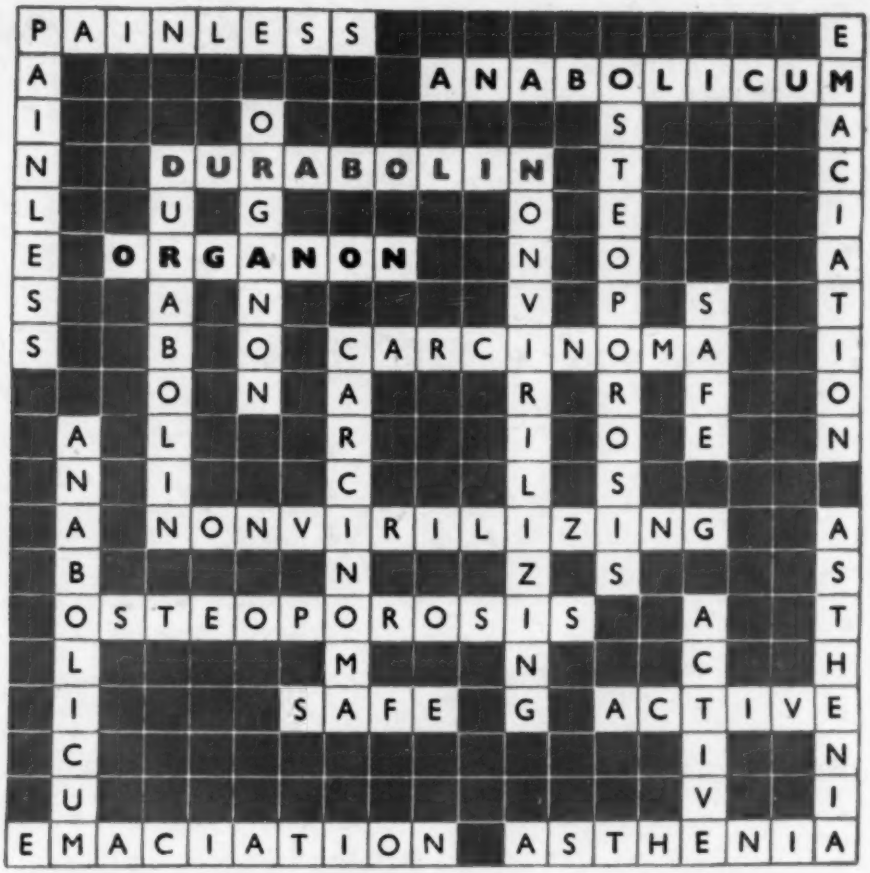
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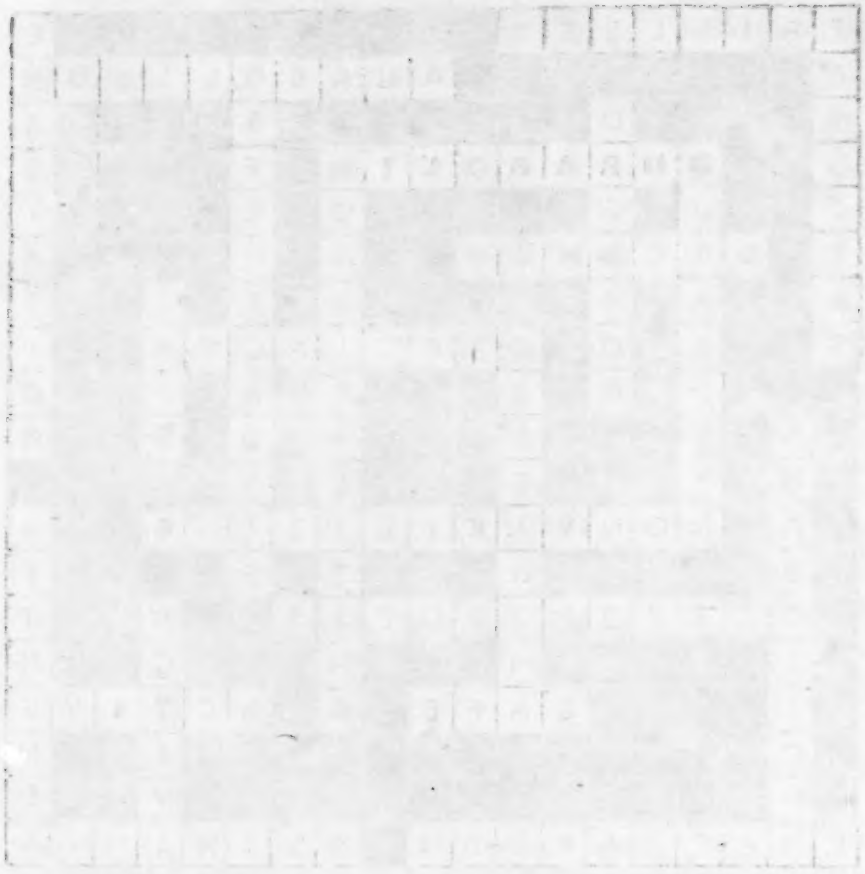

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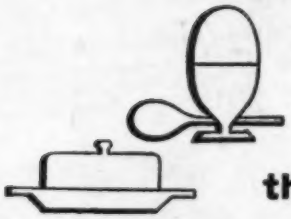

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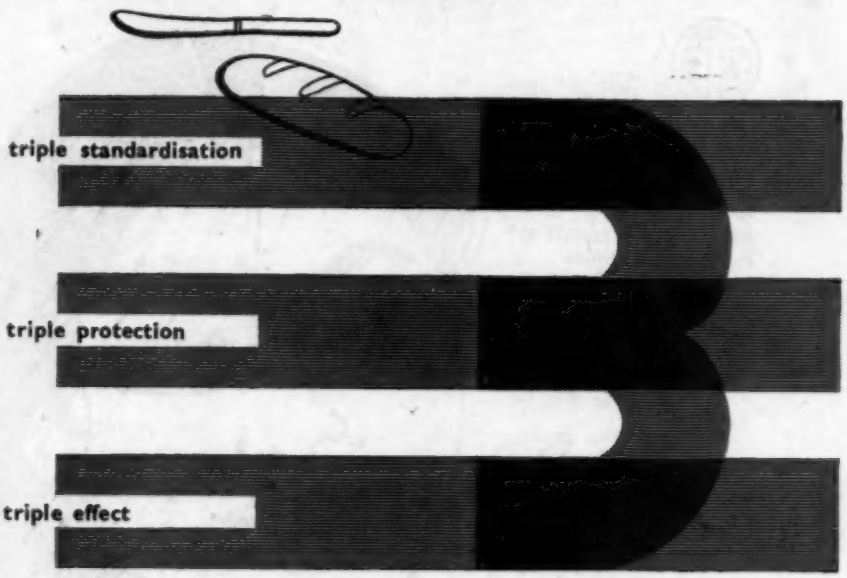

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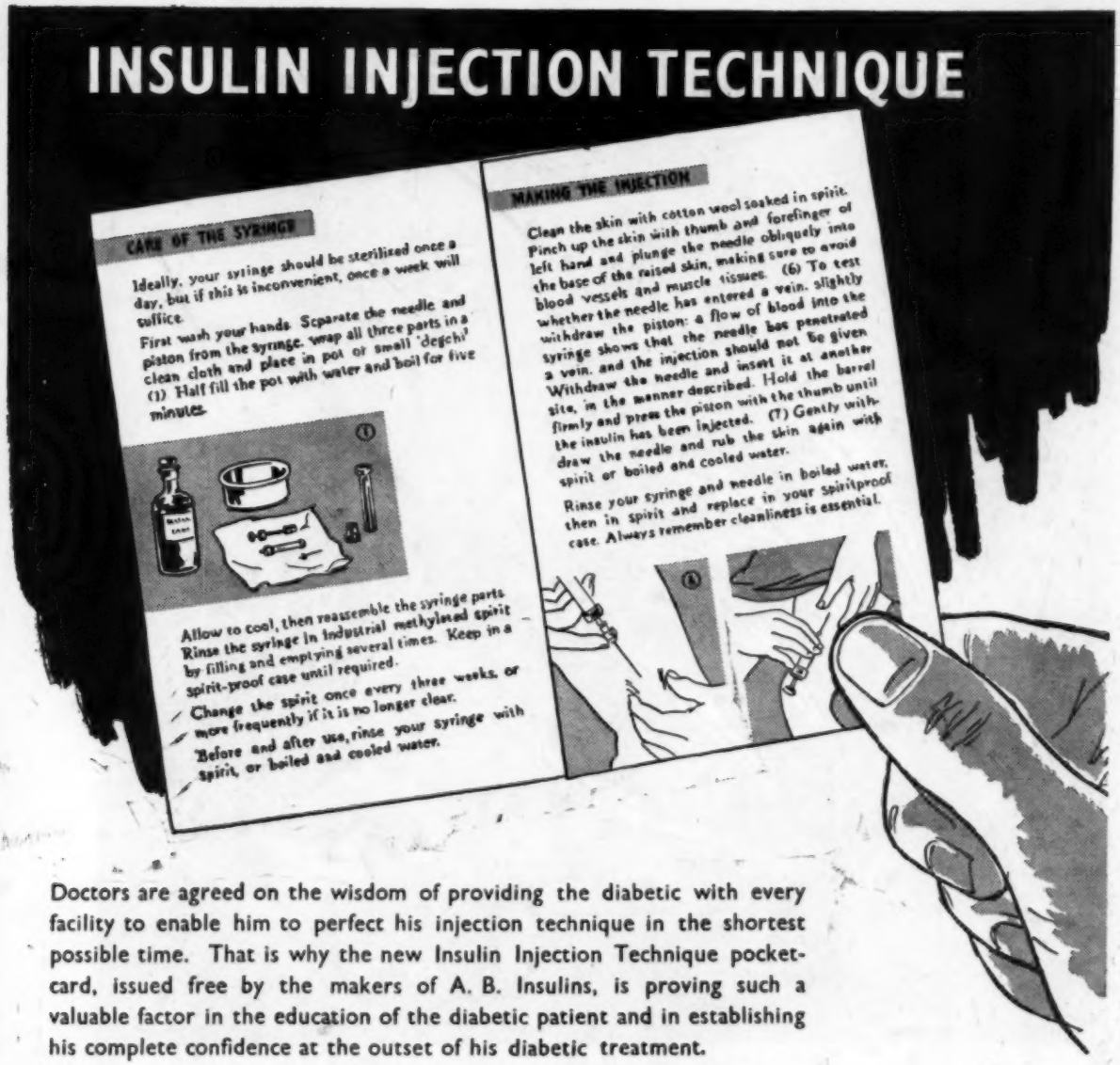
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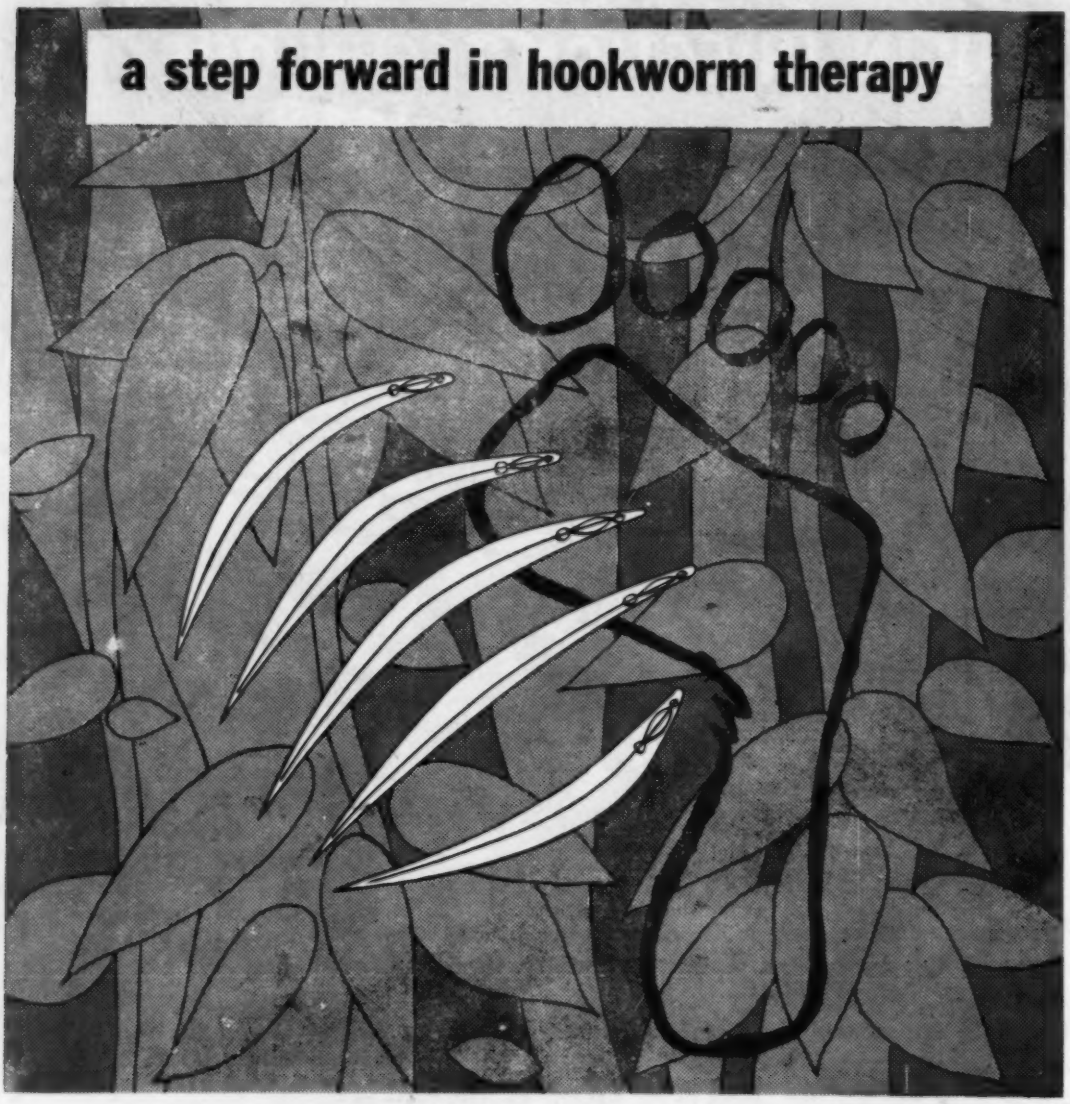

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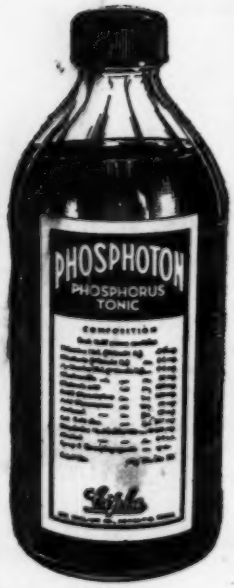

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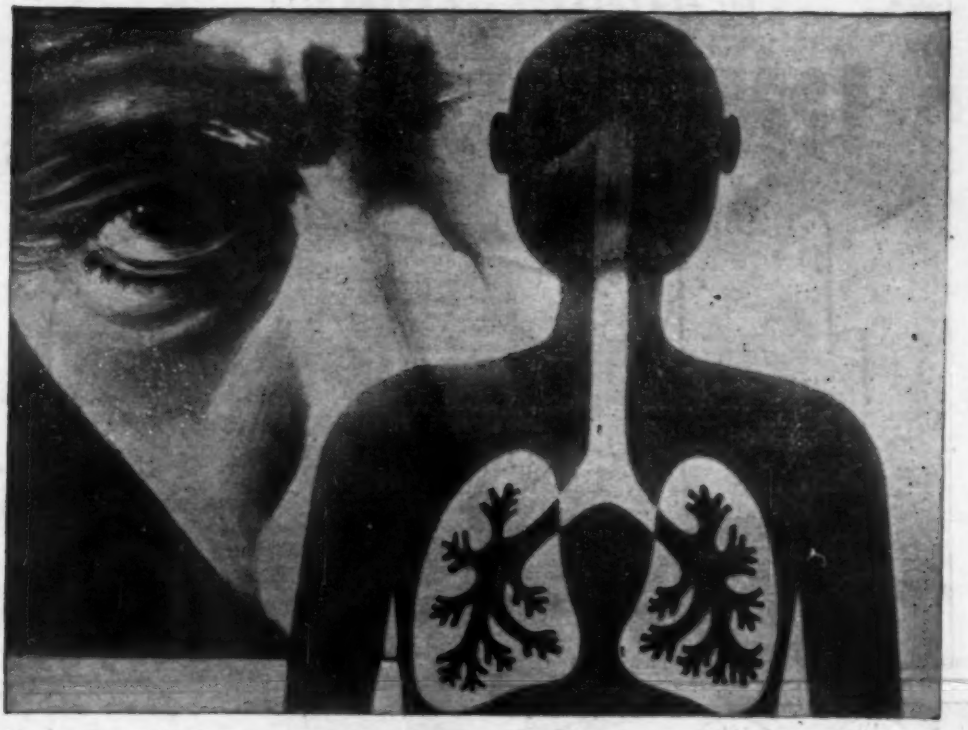

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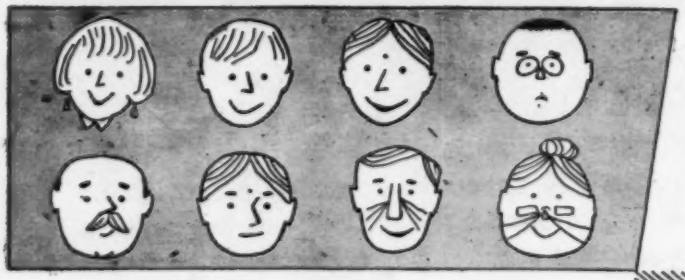

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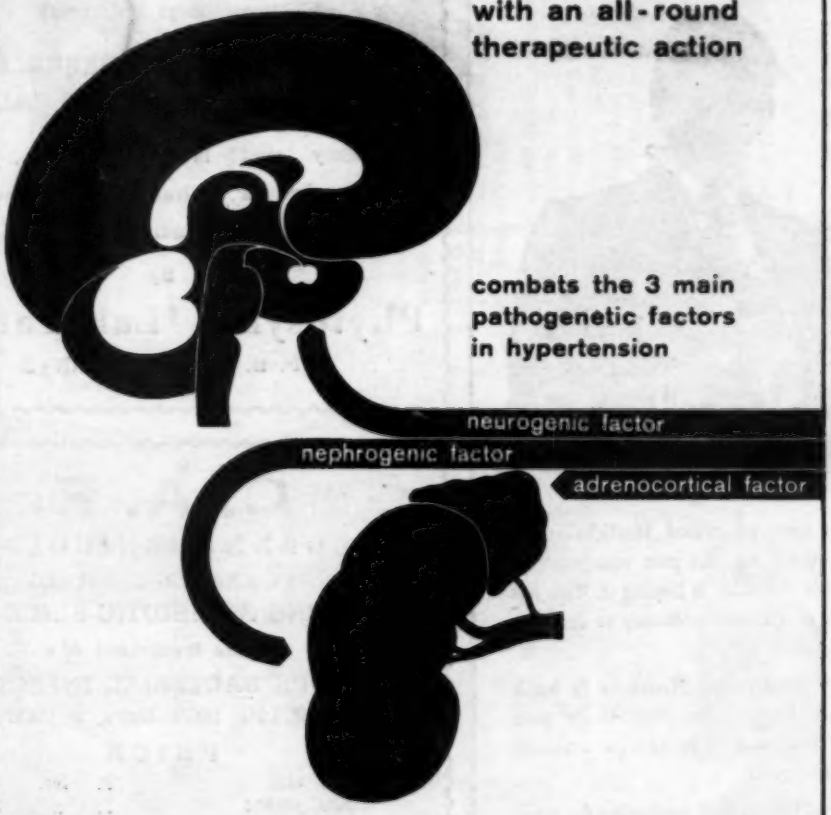

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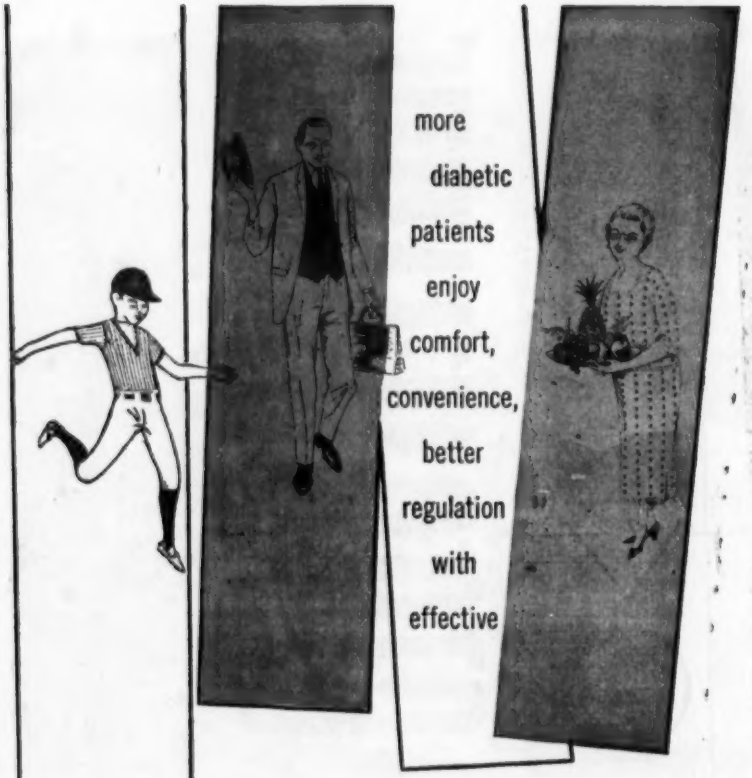

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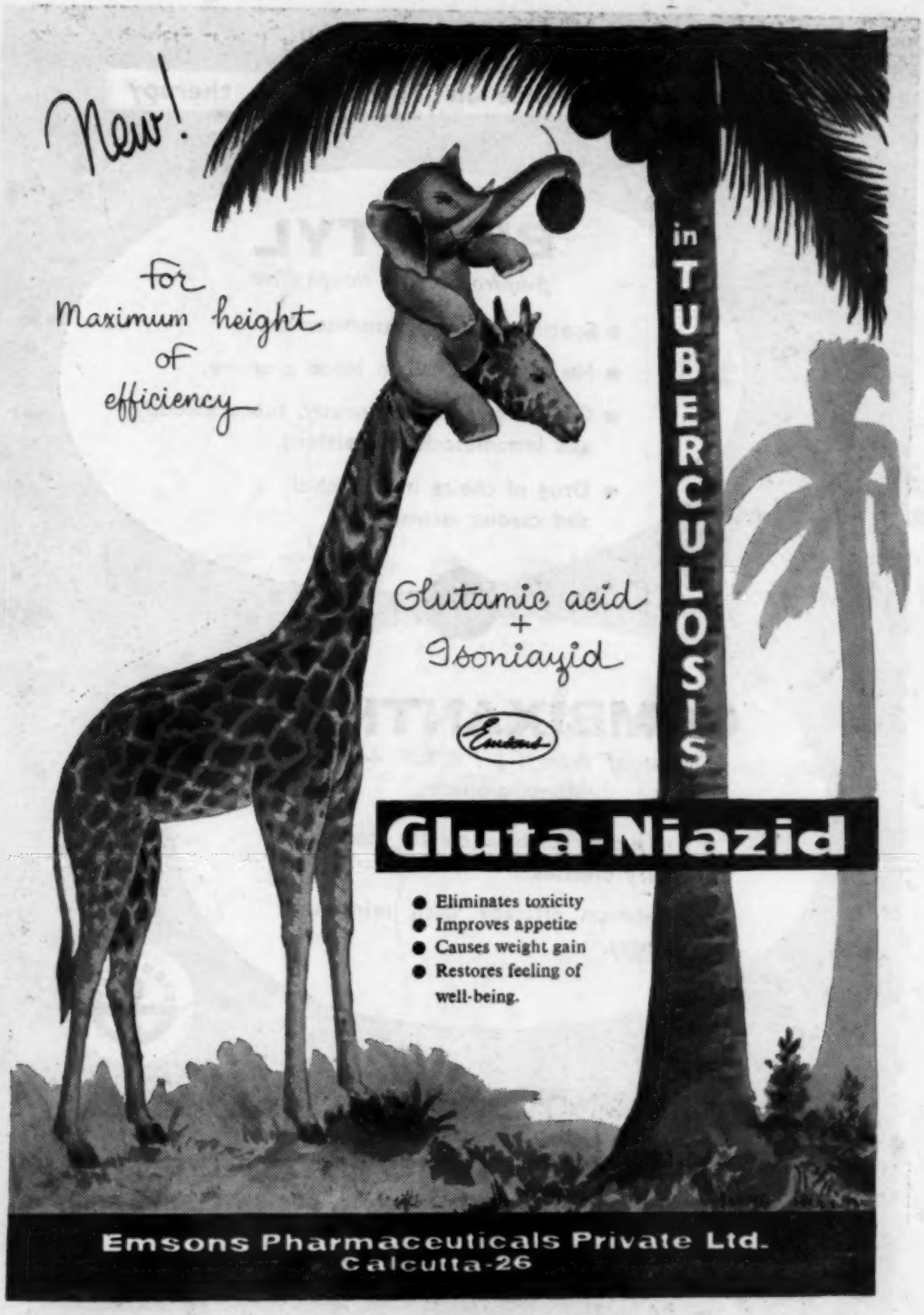
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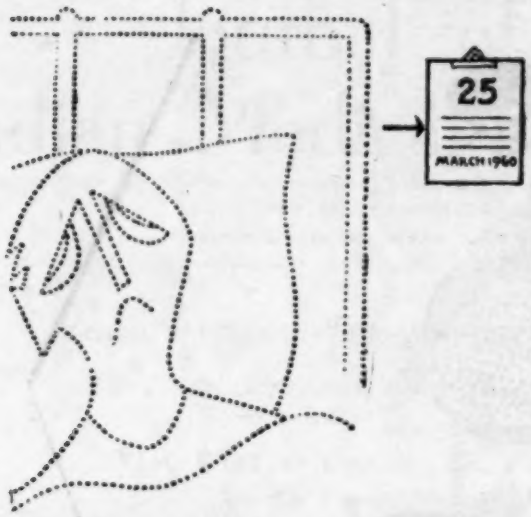

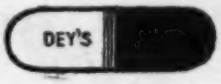

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CALCUTTA
MARCH 16, 1961

ORIGINAL ARTICLES

OBSERVATIONS ON DRUG RESISTANT KALA-AZAR

P. C. SEN GUPTA, M.B., D.PHIL., *Professor of Pathology*

AND

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School of Tropical Medicine, Calcutta

It was noted by early workers on kala-azar that a small proportion of the cases could not be cured with the best of the pentavalent antimonials (Brahmachari, 1928 ; Napier, 1927), and various schedules of intensive treatment of such cases were prescribed by them. Though occasional cases did recover with these forms of treatment, failures were quite frequent. During the last outbreak of kala-azar in eastern India, it was found that a fair proportion of cases was proving resistant to antimony therapy (Sen Gupta, 1947, 1951). Such cases were either not responding to pentavalent antimonials and terminating fatally, or relapsing within a few months of clinical recovery following such treatment. It was possible to cure the majority of such relapsed or resistant cases by prolonged treatment with the most effective aromatic diamidine compounds, viz., stilbamidine and hydroxystilbamidine. But a small proportion still proved refractory to repeated courses of both the most effective antimonials and aromatic diamidine compounds. These cases could thus be classed as drug-resistant cases. Such cases, however, were not confined to India alone and were reported from Africa, the Mediterranean countries, and China as well. In view of the fact that occasional cases of this type had been cured by splenectomy, the operation followed by chemotherapy was recommended for treatment of drug-resistant kala-azar (Morton and Cooke, 1948).

The value of splenectomy in the treatment of kala-azar was discussed by Das and Sen Gupta (1950). The available literature on the subject was reviewed and notes of a case under the care of one of the writers presented. It was felt that the meagre data relating to drug-resistant kala-azar did not indicate any statistical significance in favour of splenectomy. It was, however, noted that splenectomy alone seemed to offer about 30 per cent chance of cure in ordinary kala-azar of the Mediterranean countries.

During the years that have elapsed since the publication of the above paper (Das and Sen Gupta, *loc. cit.*), newer clinical data have become available. Drug-resistant cases of kala-azar treated by splenectomy have been reported from China and a Mediterranean type of case from Australia (Rigg, 1957). During the last 18 years, many cases of resistant kala-azar were admitted under the care of the senior author into the Hospital for Tropical Diseases, Calcutta. The majority of the cases could be cured after many months of intensive chemotherapy with stilbamidine or hydroxystilbamidine. But in a small proportion of cases even such therapy along with measures to combat anaemia and increase body resistance proved unsuccessful and splenectomy could be done in four of them. One case had splenectomy done in England, and the operation was followed by a course of pentamidine. This case had a relapse of kala-azar and was admitted into the Hospital for Tropical Diseases, Calcutta, for treatment. In the present communication, the clinical data relating to these five cases treated by splenectomy are presented and the problem of drug resistance in kala-azar and the role of splenectomy in its treatment

TABLE I—SHOWING CLINICAL DATA OF DRUG RESISTANT KALA-AZAR CASES TREATED BY SPLENECTOMY

Data	Case 1	Case 2	Case 3	Case 4	Case 5
Age and Sex ...	13, M	18, M	23, M	25, M	29, F
Weight (lb.) ...	50	82	112	86	90
Duration of K.A. (years)	4	4	5 (? 7)	5	4
Spleen (inch below costal margin)	7—9	9	0 (Splenectomy abroad)	6	5
Complications ...	Pellagrous dermatitis, angular stomatitis, diarrhoea, bronchitis	Flexner dysentery, oedema legs, ascites, bronchitis, epistaxis	Nil	Ascites, jaundice, nephrosis	Cancrum oris, bronchitis
Hb. (g)/W.B.C. (thousand c.mm.)	7·6/1·2; 4·0/0·9	6·8/2·2; 5·7/1·5	11·2/8·0	4·35/1·35	4·35/0·9
Maximum rise of P.C.V. after adrenaline	16·6%; 1·2% (after splenectomy)	59·4%	Nil (post-splenectomy)		
L.D. bodies ...	+ in Il; ++ in Spl.	− in Il, +++ in Spl.	+ in Il	+ in St.	+ in St., +++ in Spl.
Treatment: before admission, during previous stay in hospital and previous to splenectomy	NaSbGl 30 inj.; Pentamidine 20 inj.; *Stilb. 2·02 g.; *Hydroxystilb 2·525 g.; *Neostibosan 3·15 and 1·3 g.; *NaSbGl 19 ml.	U. S. 60 inj. Pentamidine 20 inj. *Hydroxystilb 5·55 g. (Pentamidine 10 & Stilb. 30 inj.); *Stilbamidine 4·2 g.	U.S. 12 inj. U.S. 19 inj. NaSbGl 8 inj. Pentamidine 15 inj.	U.S. 2 g. NaSbGl 60 ml. Stilb 2·57 g. NaSbGl 33 ml.	NaSbGl 10+10 inj. U.S. 15+15 inj. Neostibosan ? 10-15 inj. *Pentamidine 3·19 g. *Amstib. 2·7 g. *Hydroxystilb 3·66 g. *Hydroxystilb. 6·340 g. *NaSbGl 37 ml.
Splenectomy, result	C	C	C	D	C
Hb. (g) / W.B.C. /c.mm.) immediately after splenectomy	10·5/14,400	10·2/33,000	Normal/14,000	7·48/11,600	9·52/4,750
Specific treatment after splenectomy	*Neostibosan 0·475 g. *Stilbamidine 4·055 g.	*Neostibosan 9·05 g.	Pentamidine 15 inj. Neostibosan 10 inj. *Stilbamidine 4·2 g.	...	*Neostibosan 0·05 g. *NaSbGl 40 ml. *Hydroxystilb 3·55 g.
Hb. (g)/W.B.C./c. .mm.) after completion of treatment	13·6/17,200	13·36/12,850	15·3/12,250	...	14·6/8,900
Weight (lb.) ...	78	91	120	...	115
Immediate result ...	C	C	C	...	C
Result after follow-up	C (7 years)	C (4 years)	C (7 months)	...	C (2 years)

Il=ilium, St=sternum, Spl.=spleen puncture smear, C=cured, D=died, NaSbGl=Sodium antimony gluconate, U.S.=urea stibamine, Amstib=aminostiburea, Stilb=stilbamidine, Hydroxystilb=hydroxystilbamidine.
* Injections given at the Hospital for Tropical Diseases.

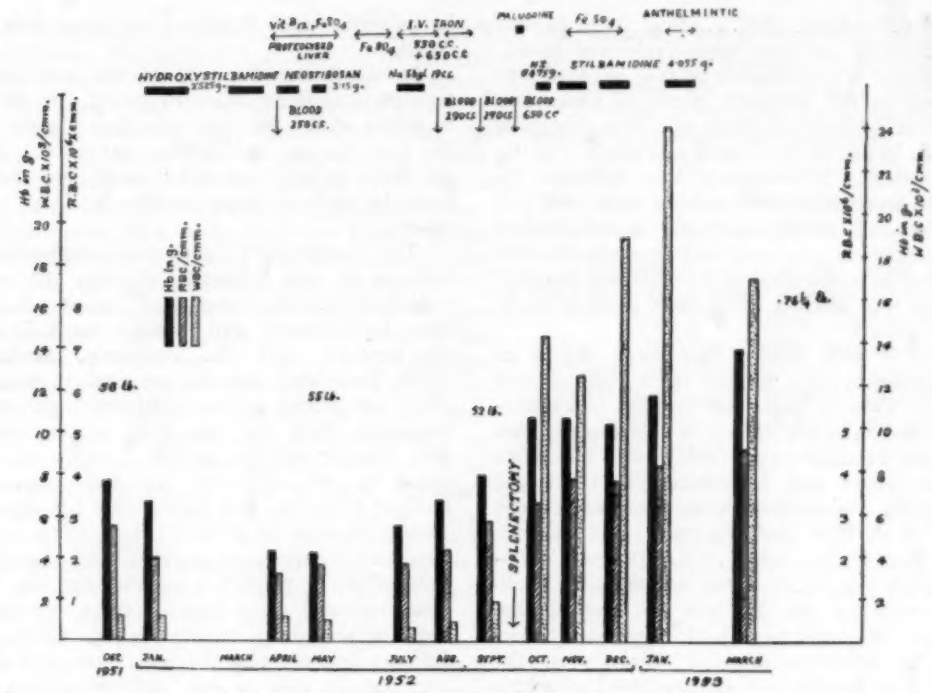

FIG.1—SHOWING THE EFFECT OF SPLENECTOMY IN CASE 1.

discussed. Three of these cases were presented before different clinical meetings of the School (Sen Gupta, 1954a, 1954b, 1958).

CLINICAL DATA

The detailed notes of individual cases cover the events for several years in each instance. The analysis of the relevant clinical data (Table 1) and a chart (Fig. 1) on the blood picture in one of the cases are presented here.

It will be noted that four of the patients were Indians and the other (Case 3) was of European descent. Their ages varied from 13 to 29 years, and 4 were males and one female. The duration of kala-azar previous to splenectomy varied between 4 and 5 years. All the patients had repeated courses of treatment with both pentavalent antimonials and aromatic diamidines previous to the operation. Usually there was clinical improvement following specific treament and the patients could be regarded as clinically cured in the early stages of the illness. But relapses invariably occured within a few months and required further treament which usually had to be more prolonged. The periods of wellbeing gradually became shorter and shorter and ultimately specific treatment had no effect whatsoever even when such treatment was backed by anti-anaemic treatment including blood transfusions, treatment of co-existing infections, and non-specific protein therapy. One of the patients (Case 4) had hepatic and renal complications indicative of parenchymal damage. This patient died of complications after the operation.

DISCUSSION

It will be apparent from the clinical data that all the cases had proved resistant to anti-kala-azar drugs before splenectomy was undertaken. When splenectomy was followed by prolonged chemotherapy, cures could be obtained in four out of the five cases. Drugs which had previously failed to produce permanent cure were successful after the operation. It would thus appear that the spleen was in some way responsible for the failure of chemotherapy in these cases.

It was recognised by earlier workers that excessive activity of the spleen might result in increased destruction of blood cells, thereby preventing cure of kala-azar (Burchenal *et al*, 1947 ; Das and Sen Gupta, *loc. cit.*). All the cases of the present series had marked or massive splenomegaly, profound anaemia and leucopenia. The adrenaline test was performed in two cases and an increase

of packed cell volume (P.C.V.) from 24 to 28 and from 16·5 to 26 per cent respectively was found, indicating that a considerable volume of blood was sequestered in the enlarged spleen of these two cases. (After splenectomy there was little change in the P.V.C. in one of these cases and another of the present series). Splenectomy was followed by immediate increase of haemoglobin value and red and white cell counts and the haematological improvement could be stabilized by chemotherapy and cure of kala-azar during the next few months. There was thus distinct evidence of hypersplenism in these cases.

But it is well known that some degree of hypersplenism is often present in chronic cases of kala-azar. This is indicated by the histopathological changes in the spleen in this disease (Sen Gupta and Bhattacharyya, 1951), the adrenaline test (Sen Gupta and Bhattacharyya, 1953) and presence of auto-antibodies against blood cells (Swarup *et al*, 1959) and the changes in the bone marrow (Sen Gupta, 1954c). Yet the vast majority of cases get cured of the disease after specific chemotherapy which leads to gradual disappearance of parasitized histiocytes and consequently of other pathological changes in the spleen. The histological changes in the spleen in the present series have already been described (Sen Gupta and Chatterji, 1960). Besides the heavy parasitization and features of congestive splenomegaly, the other findings included the presence of numerous leishmanial granulomata in one case, less marked changes of this type in others, and of the large accumulations of plasma cells seen about the parasitized histiocytes in these cases. It is known that small granuloma-like foci containing parasitized and non-parasitized histiocytes, lymphocytes and plasma cells are found in the liver in ordinary cases of kala-azar (Sen Gupta *et al*, 1956). The spleen showed extreme degree of this feature in the present series of cases. Plasma cells are known to absorb stilbamidine, one of the most powerful drugs against kala-azar (Snapper *et al* 1947). It may be speculated that stilbamidine and possibly such other drugs got absorbed in the masses of plasma cells and failed to affect the parasitized histiocytes in these cases.

Though there is no doubt that marked and persistent hypersplenism is one of the main causes of failure of chemotherapy, it is probably not the only cause. This is evident from the fact that splenectomy alone is not able to cure resistant kala-azar except in occasional cases and that even when the operation is followed by inadequate chemotherapy, relapse of kala-azar often occurs. Other possible factors in the host and/or the parasite which may be responsible for drug resistance in kala-azar need therefore be taken into consideration.

In discussing the role of the host in drug-resistance, it is necessary to consider (i) the mode of action of the anti-kala-azar drugs in relation to the host tissues, and (ii) the importance of body resistance in the cure of kala-azar, and the variations in each of these factors in drug resistant cases.

The pentavalent antimony compounds are believed to act indirectly through the reticulo-endothelial (R.E.) system and the aromatic diamidines both directly and through the R.E. system. On analogy with the arsenicals, Brahmachari (1928) postulated that the pentavalent antimonials (Sb^{v}) are converted to relatively toxic trivalent antimony (Sb^{iii}) by the R.E. system and Sb^{iii} acts directly on the parasite. Study of urinary excretion of antimony by the polarographic method (Goodwin and Page, 1942) has shown that such conversion of S^{v} to S^{iii} does occur in human kala-azar (Chatterji *et al*, 1954) and that the conversion of Sb^{v} to Sb^{iii} is significantly less in antimony-resistant cases than in cases responding to the antimonials (Chatterji *et al*, 1956). These findings indicate that the R.E. system of the host may not be able to fully utilize antimonials for combating the leishmanial infection. The causation of this functional defect is not known. This defect leads to failure of the drug to eradicate the infection with the result that either the patient is not clinically cured or he has relapse due to multiplication of the unaffected parasities. (These leishmaniae may possibly develop some degree of tolerance to the antimonials). The relapses may respond only to prolonged treatment with different antimonials or to the aromatic diamidines only, probably because of the low rate of conversion of Sb^{v}.

The importance of body resistance as a factor in the cure of kala-azar is now well recognised. Even in the dark days when no specific treatment was known, occasional cases were cured following measures which apparently helped in raising the leucocyte count and the body resistance, viz., injections of vaccines, of T.C.C.O. (turpentine 1, creosote 1, camphor 1, olive oil 2·5), production of ulcer on the abdominal wall by counter-irritants and maintaining the ulcer for months. Study of 1000 cases of post-kala-azar dermal leishmaniasis has shown that about 17 per cent of cases of kala-azar may undergo spontaneous cure obviously due to the visceral infection being overcome by body resistance (Sen Gupta, 1956). The nature of immunity that helps in the cure of kala-azar and which leads to almost complete immunity from fresh attacks of the visceral disease but not from

the development of dermal leishmanoid, is not well understood. Probably it is cellular in nature and limited mainly to the viscera. It is, however, understandable that the blood changes in kala-azar, particularly anaemia and leucopenia render the patient very susceptible to secondary infections and complications. If these changes prove refractory on account of marked hypersplenism in drug-resistant cases, the body resistance would be unlikely to help in combating the leishmanial infection. Splenectomy is followed by immediate increase of haemoglobin and particularly of the leucocyte count indicating the probability of an increase of body resistance which may help adequate chemotherapy in curing the residual infection.

As for the factors in the parasite *L. donovani* which may be responsible for drug resistance in kala-azar, the simplest one to be assumed would be that the parasite had natural or acquired resistance to the drug. That the parasite may become relatively less sensitive or more resistant to antimonials during epidemics has been recorded (Sen Gupta, 1947, 1951). Goodwin (Morton and Cooke, 1948) tested the sensitivity to an antimonial of a strain of *L. donovani* isolated from a drug-resistant case of kala-azar after infecting the golden hamster. It was found that the infection was not resistant to the antimony compound. On the other hand, Chinese workers who inoculated two groups of Chinese hamsters with *L. donovani* from antimony-resistant case and from cases responding to antimony respectively found that the infection persisted in the group infected with antimony-resistant strain and not in the other after identical course of injections of sodium stibogluconate (Wang and Wu, 1959). It has been noted in the cases of the present series as well as in cases treated by other workers that the resistance to a drug could be overcome after splenectomy, but only after a very large total dosage had been employed. This indicates that the parasite was not completely resistant to the drug but was partially so. This is further supported by the fact that in drug-resistant cases, the use of total dosage of anti-kala-azar drugs regarded as adequate for ordinary cases or of relatively less effective drugs after splenectomy was often followed by relapse of kala-azar (e.g., Case 3, *see also* Das and Sen Gupta, *loc. cit.*).

From the above discussion, it may be concluded that drug resistance in kala-azar is due to a combination of the following interrelated factors: (a) relative resistance of the parasite to chemotherapeutic agents, (b) inability of the host's R.E. system to utilize chemotherapeutic agents, e.g., inability to adequately convert Sb^{v} to Sb^{iii}, and (c) hypersplenism of very persistent type. The last named factor is dependent on the first two which lead to persistence of splenomegaly which is massive and congestive in type and is associated with persistent anemia and leucopenia and consequently lowered body resistance.

The Value of Splenectomy in the Treatment of Drug-Resistant Kala-azar

As indicated earlier in this paper, considerable data have accumulated during the decade following the review of the value of splenectomy in kala-azar (Das and Sen Gupta, *loc. cit.*). These data have been summarised in the Table 2. The case reported by Rigg (1957) has been excluded, as the result of follow-up after 6 months or more is not known.

Table 2—Showing the Results of Splenectomy in Different Series

Series	No. of cases	Cures	Failures
Das & Sen Gupta ...	6	4	2
Peking series (Wang & Wu, 1959)	10	9	1
Nanking series (Wang & Wu, 1959)	4	3*	1
Present series ...	5	4	1
Total	25	20	5

* 3 of the cases were treated with sodium stibogluconate and pentamidine after splenectomy. They had relapse of kala-azar which ultimately responded to prolonged treatment with urea stibamine and/or pentamidine.

On consideration of the above data, it appears that out of a total of 25 cases treated by splenectomy and chemotherapy, 20 were cured and the treatment was unsuccessful in 5 cases. It may thus be concluded that splenectomy is of great value in the treatment of drug resistant kala-azar, which otherwise almost always ends fatally.

The question as to when splenectomy should be undertaken deserves consideration. A case of kala-azar should be regarded as suitable for the operation when it fails to be permanently cured after adequate courses of treatment with the most effective pentavalent antimonials and aromatic diamidines (Sen Gupta, 1949). It is advisable not to delay the operation too long because of the chance of development of complications affecting the liver, kidneys etc., which would increase surgical risk. This was noted in Case 4 of the present

series and in two of the more recent cases in which development of complications prevented the operations being undertaken.

Though the operation, which was invariably preceded by courses of injections of anti-kala-azar drugs in each case, is reported to have cured kala-azar in 2 out of 14 cases reported from China and in one reported earlier by Burchenal *et al* (*loc. cit.*), it is necessary to stress that splenectomy should always be followed by prolonged courses of treatment with the most powerful anti-kala-azar drugs, viz., stilbamidine or hydroxystilbamidine. The latter drug is not often available. It should, however, be realised that pentamidine is distinctly less effective and is no substitute for hydroxystilbamidine or stilbamidine. The neuropathic sequel of stilbamidine (Sen Gupta, 1943), which has precluded the routine use of this powerful drug in kala-azar, is a troublesome but not fatal condition and the symptoms tend to regress. There should be no hesitation in the use of this drug, hydroxystilbamidine being unavailable, for the treatment of resistant cases. If antimony compounds have to be used, the most powerful ones, viz., urea stibamine or neostibosan, should be employed and not sodium stibogluconate with which there is a higher relapse rate and which is thus a less effective compound (Sen Gupta, 1953). After splenectomy has been performed it is necessary to use three or more courses of injections at interval of a fortnight or so between the courses.

Summary

The clinical data relating to five cases of drug-resistant kala-azar treated with splenectomy followed by chemotherapy have been presented.

The causation of drug resistance has been discussed and it has been concluded that this is due to a combination of three interrelated factors, viz., (a) relative resistance of the parasite to chemotherapeutic agents, (b) inability of the host's reticuloendothelial system to fully utilise the drugs against the infection, e.g. inability to convert Sb^{v} to Sb^{III}, and (c) hypersplenism of a very persistent type that is dependent on (a) and (b), leading to profound anaemia, leucopenia and lowered body resistance.

The literature on treatment of drug-resistant kala-azar has been reviewed and it has been concluded that splenectomy followed by prolonged chemotherapy provides very good chance of cure (20 out of 25). The operation should not be unduly delayed because of the chance of development of serious complications which might increase the surgical risk. For anti-kala-azar treatment after splenectomy, only the most powerful aromatic diamidines such as stilbamidine or hydroxystilbamidine, or antimonials such as urea stibamine group of drugs should be employed. Several courses of injections with a total dose 3 to 4 times the amount needed for ordinary cases of kala-azar should be given.

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SCHICK TEST IN LUDHIANA DISTRICT

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Introduction

The exact incidence of diphtheria in the Punjab is not available for various reasons. Diphtheria is not a notifiable disease in rural areas and although a notifiable disease in urban areas, it is not usually notified because of the general indifference of the medical practitioners regarding the notification of infectious diseases, and diphtheria is no exception. Even if a case is notified by a medical practitioner, it is not declared as such by the health authorities before it is confirmed by culture. On account of the limited laboratory facilities and extra expenditure involved in getting the throat swab cultured, very few practitioners get their cases bacteriologically confirmed. They follow the golden rule of treating every suspected case of diphtheria as one of diphtheria. The local health authorities can be helpful by immediately confirming the clinical diagnosis by a culture of the throat swab. If done later, it becomes useless as by that time the patient has received specific treatment for diphtheria.

In the absence of such data the only alternative is to determine the percentage of people who are susceptible or immune to this disease. This can be easily done by performing the Schick test.

A mass immunisation programme against diphtheria among school-going children has been advocated through School Health Services in the cities and Primary Health Centres in rural areas. Before undertaking such an extensive and expensive programme, it was considered necessary to carry out a Schick survey.

Material and Method

1,805 children of ages varying from one to eleven years and belonging to both urban and rural areas were selected for performing the Schick test. The age, sex and areawise distribution of these children are shown in Table 1.

Of 1,805 children, 521 were aged from one to six years and 1,284 were school-going students of whom 657 and 627 belonged to age groups 6-7 years and 10-11 years respectively. Of the school-going students, 596 were studying in the schools of Ludhiana town and 688 belonged to the schools of rural areas. These children were carefully examined and selected for the test.

Table 1—Showing Age and Sex Distribution in Urban and Rural Areas

Age (years)	Urban		Rural	
	Male	Female	Male	Female
From 1 to 2 ...	63	45	—	—
„ 2 to 3 ...	87	40	—	—
„ 3 to 4 ...	53	47	—	—
„ 4 to 5 ...	68	40	—	—
„ 5 to 6 ...	49	29	—	—
„ 6 to 7 ...	177	131	166	183
„ 10 to 11 ...	183	105	183	156
Total ...	680	437	349	339

In order that a sample for Schick survey be representative of school-going students, due consideration was given to the selection of the schools located in thickly and sparsely populated areas and of those located on the road side and in the interior of the rural areas respectively.

Inoculation technique:

Most careful aseptic precautions were observed in the administration of the toxin. A sterile needle was used for every injection. The flexor surface of both arms were cleansed with soap and water and allowed to dry. Lyophilised Diphtheria Schick Test toxin and control were reconstituted with normal saline and used for the test. 0·2 ml. of Schick toxin was injected intracutaneously in the left forearm along with 0·2 ml. of Schick control in the right forearm. Schick toxin and its control were obtained from the Haffkine Institute, Bombay.

Results and Calculations

A Schick reaction was considered positive when a circumscribed red flush appeared on the test arm and measured 10 mm. or more in diameter on the 4th day of the test and continued till the 7th day, as per directions for use of Schick toxin (Haffkine Institute, Bombay). Due to administrative reasons, only one reading of the test was made. This was done on the 4th day after inoculation. The interpretations of the individual tests were carried out by the author.

(A) Results in various age-groups from 1 to 6 years:

(i) Table 2 shows the result of Schick test carried out on 521 children of ages varying from 1 to 6 years:

TABLE 2—SHOWING RESULT OF SCHICK TEST IN CHILDREN AGED FROM 1 TO 6 YEARS

Age (years)	No. tested	Schick positive	
		No.	Per cent
From 1 to 2 ...	108	24	22·2
„ 2 to 3 ...	127	26	20·4
„ 3 to 4 ...	100	19	19
„ 4 to 5 ...	108	17	15·7
„ 5 to 6 ...	78	8	10·2

The percentage of positive Schick reactions in the age-group of 1-2 years was 22·2, which gradually came down to 10·2 in the age-group of 5-6 years.

(ii) Tables 3 and 4 show sex-wise the result of Schick test carried out on 521 children of ages varying from 1 to 6 years.

TABLE 3—SHOWING RESULT OF SCHICK TEST IN BOYS AGED FROM 1 TO 6 YEARS

Age (years)	No. tested	Schick positive	
		No.	Per cent
From 1 to 2 ...	63	12	19
„ 2 to 3 ...	87	17	19·5
„ 3 to 4 ...	47	7	14·8
„ 4 to 5 ...	68	10	14·7
„ 5 to 6 ...	49	4	8·1

The percentage of positive Schick reaction in boys in the age-group of 1-2 years was 19, which gradually came down to 8·1 in the age-group of 5-6 years.

TABLE 4—SHOWING RESULT OF SCHICK TEST IN GIRLS AGED FROM 1 TO 6 YEARS

Age (years)	No. tested	Schick positive	
		No.	Per cent
From 1 to 2 ...	45	12	26·6
„ 2 to 3 ...	40	9	22·5
„ 3 to 4 ...	53	12	22·6
„ 4 to 5 ...	40	7	17·5
„ 5 to 6 ...	29	4	13·7

The percentage of positive Schick reactions in girls in the age-group of 1-2 years was 26·6, which gradually came down to 13·7 in the age-group of 5-6 years.

(B) RESULTS IN SCHOOL-GOING STUDENTS OF AGE-GROUPS 6-7 AND 10-11 YEARS :

(i) Table 5 shows the result of Schick test carried out on 1284 school-going students in both urban and rural areas of ages varying from 6-7 and 10-11 years.

TABLE 5—SHOWING RESULTS OF SCHICK TEST IN SCHOOL-GOING STUDENTS AGED FROM 6 TO 7 AND 10 TO 11 YEARS

Age (years)	No. tested	Schick positive	
		No.	Per cent
From 6 to 7 ...	657	42	6·3
„ 10 to 11 ...	627	23	3·6

In the age-group 6-7, 657 tests were done and only 42 children were found to be Schick positive, i.e., only 6·3 per cent gave a positive Schick reaction. Similarly, in the age-group of 10-11 years, out of 627 tests done, only 23 children were found to be Schick positive, i.e., 3·6 per cent gave a positive Schick reaction.

(ii) Table 6 shows the result of Schick test carried out in Ludhiana town (urban area) sex-wise amongst school-going students.

TABLE 6—SHOWING RESULTS OF SCHICK TEST IN URBAN SCHOOL-GOING STUDENTS IN DIFFERENT AGE AND SEX GROUPS

Age (years)	No. tested		Schick positive			
			No.		Percentage	
	Male	Female	Male	Female	Male	Female
From 6 to 7	177	131	8	12	4·5	9·1
„ 10 to 11	183	105	7	7	3·8	6·6

The percentage of positive Schick reaction amongst boys in the age-group of 6-7 years was 4·5 and in the age-group of 10-11 years 3·8, whereas in case of girls the percentage of positive Schick reaction in the age-group of 6 to 7 and 10 to 11 years was 9·1 and 6·6 respectively.

(iii) Table 7 shows the result of Schick test carried out in rural areas sex-wise amongst school-going students.

The percentage of positive reactions amongst rural boys in the age-groups of 6 to 7 and 10 to 11 years was 3 and 1·6 respectively, whereas in case of rural girls the percentage of Schick reactions in the age-groups of 6 to 7 and 10 to 11 years was 9·2 and 3·8 respectively.

TABLE 7—SHOWING RESULTS OF SCHICK TEST IN RURAL SCHOOL-GOING STUDENTS IN DIFFERENT AGE AND SEX GROUPS

Age (years)	No. tested		Schick positive			
			No.		Percentage	
	Male	Female	Male	Female	Male	Female
From 6 to 7	166	183	5	17	3·0	9·2
„ 10 to 11	183	156	3	6	1·6	3·8

DISCUSSION

The percentage of positive Schick reaction in the age-group of 1 to 2 years in boys and girls was 19 and 26·6 respectively. In the age-group of 6 to 7 years, the percentage of positive Schick reaction in case of boys and girls was 4·5 and 9·1 respectively in urban areas and 3·0 and 9·2 in rural areas. In the age-group of 10 to 11 years, the percentage of positive Schick reaction further dropped down to 3·8 and 6·6 in boys and girls of the urban areas and 1·6 and 3·8 respectively in the rural areas.

From the above it is clear that—

(a) The percentage of positive Schick reaction is always greater in females than in the males of the corresponding age-groups, irrespective of the areas.

(b) The percentage of positive Schick reaction in school-going children of the urban and rural areas in the age-group of 6 to 7 years was almost the same, but in 10 to 11 years age-group, the school children of the urban areas showed a higher positive Schick reaction as compared to the school children of the rural areas.

Dudley (1929) mentioned that in all Schick reaction statistics where the data for the different sexes had been given separately, the percentage of positive Schick reaction was always greater in the female than in the corresponding age-groups in the male. The figure for California totals 3,582 females with 60 per cent positive Schick reaction against 50 per cent among 3,082 males. Zingher (1917) found positive Schick reaction in 4·1 per cent among 218 boys and 15·5 per cent among 148 females.

Dudley (*loc. cit.*) explained that the female acquired circulating antitoxin at a slower rate than the male at all ages. The evidence on the whole seems to favour the hypothesis that the potentiality of responding to antigenic stimuli from diphtheria bacilli in the environment is greater in the average male than in the average female. If this is so, the susceptibility to diphtheria is to some extent a real hereditary sex-linked character and is not due to the fact that females in every country as a rule, lead a more sheltered life than males. Chason (1936) in his study of diphtheria immunity in rural areas of Alabama found that there was rapid rise in the percentage of negative Schick reactions with age, so that at 6 years 68 per cent and at 10 years 92 per cent were found to be Schick negative. In the present study, there was comparatively much rapid rise in the percentage of negative reactions with age, so that at the age of six years 96 per cent of boys and 91 per cent of girls were found to be Schick negative. No difference in Schick reaction was noticed amongst students studying in the schools located in the thickly or sparsely populated areas.

Due to this very low percentage of Schick reactions in the age-groups under study, there was doubt about the potency of the Schick toxin, but the Haffkine Institute, Bombay, declared the toxin to be potent.

The percentage of positive Schick reaction in the age-group of 1 to 2 years was 22·2 (Table 2) which dropped down to 10·2 and 6·3 in the age-groups of 5 to 6 and 6 to 7 years (Tables 2 and 5) respectively. Schick reactions in the age-group of 1 to 5 years corresponded with the clinical findings of Thanawala (1954), and Singha and Taylor (1959), the highest incidence of diphtheria was found in the age-group of 1 to 5 years. On going through case records of diphtheria patients admitted in the Brown Hospital of the Christian Medical College, Ludhiana, it was found that out of 35 cases admitted between 1955 and 1959, 31 were under 2 years of age, 3 were between 2 and 3 years, and only one case was eight years old. Therefore, to minimise the incidence of diphtheria in the age-group of 1-5 years, diphtheria immunisation programme is indicated.

Seaton (1951) in his study of 23 children from newborn to 5 years found that 13 per cent were Schick positive in one study (Haninan series), and in another (Tsinan area) out of 487 children from newborn to 5 years, he found that 87·1 per cent were Schick positive. He was of opinion that there was a greater percentage of immunity to diphtheria in the tropics than in colder climates.

Morales and Hendry (1935) held that sufficient diphtheria antitoxin to give a negative Schick reaction was present at birth in the blood of babies born of Schick negative mothers; but this immunity, which was passively received from the mothers, was gradually lost, so that before the end of first year of life, a great majority of infants became Schick positive. Thereafter the proportion of negative Schick reaction cases increased rapidly with each year of age. In the present

study, only 19 per cent of boys and 26·6 per cent of girls were found to be Schick positive in the age-group of 1 to 2 years and thereafter the proportion of Schick positive cases decreased with each year of age.

The low percentage of positive Schick reaction even in the age-group of 1 to 2 years, when it should have been close to 90 per cent, is difficult to explain. Lahiri (1953) pointed out that in India natural anti-diphtheritic immunity seems to be highly prevalent. This may be an example of active immunity produced by frequent latent infections from unexplored sources, as the incidence of clinical diphtheria appears to be small and the available carrier rate figures do not suggest any formidable source of infection. Of course, the subjects live in an environment which is conducive to frequent exposure to infections. This immunity may also be due to certain tissue characteristics peculiar to the Indian race (Lahiri, 1954). Formerly antitoxic immunity with increasing age was regarded as a normal physiological development independent of infection, but this issue was reviewed by Dudley (*loc. cit.*) and others who proved that it was an example of true specific immunity acquired as a result of infection with diphtheria bacillus, but usually without any clinical manifestation.

Summary

The exact incidence of diphtheria is not available in the Punjab. A mass diphtheria immunisation programme is being advocated for school-going children. In order to ascertain if this immunisation programme against diphtheria is required in this age-group, 1,805 Schick tests were performed on children of ages varying from one to eleven years. The percentage of positive Schick reaction in the age-group 1 to 2 years in boys and girls was 19 and 26·6 respectively. Thereafter the proportion of positive Schick reaction decreased with each year of age and came down to 4·5 and 9·1 in the age-group of 6 to 7 years in boys and girls of urban area and 3·0 and 9·2 of rural areas respectively. Similarly in the age-group of 10 to 11 years, the percentage of positive Schick reaction in boys and girls in urban area was 3·8 and 6·6, and 1·6 and 3·8 in rural areas respectively. As the percentage of positive Schick reaction amongst school-going children (age-group of 6-7 and 10-11 years) was very low, there appear to be hardly any justification for carrying out diphtheria immunisation programme in school-going children.

There is an indication for undertaking diphtheria immunisation programme in the age-group of 1-5 years. The incidence of diphtheria in this age-group also lends support to immunisation programme during this period. Diphtheria immunisation programme in this age-group can be carried out through maternity and child welfare and primary health centres which are being opened throughout the length and breadth of the country.

Acknowledgment

I wish to express my gratitude to Dr. Donald T. Rice, Director of Social and Preventive Medicine, Christian Medical College, Ludhiana, for helping me to chalk out the plan of operations for Schick test and allowing me to go through the records of diphtheria cases which were admitted in the Brown Hospital, attached to the College.

I also wish to thank the members of the staff of the health department of the Municipal Committee, Ludhiana, Maternity and Child Welfare Centres and Health School, Ludhiana, who assisted me in carrying out the tests.

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OBSERVATIONS ON THE TREATMENT OF BRONCHOGENIC CARCINOMA WITH NITROGEN MUSTARD

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Introduction

It is generally accepted that pulmonary resection of the affected lung offers the best chance of survival of patients with bronchial carcinoma. But cases are not rare in general practice where the benefit of surgery comes as a late rescue. These poor-risk patients with advanced disease are considered unsuitable even for radiotherapy. In such cases chemotherapy materially alters the chance of survival and improves the symptomatology. Of the 502 patients studied at the Brompton Hospital in the years 1944-48 a small number were treated with chemotherapeutic agent, mainly chlorethyl-

amine. Although improvement was observed in some cases, the authors condemned this treatment because repeated vomiting outweighed its temporary benefit.

Since then many workers have studied the palliative treatment of bronchial carcinoma. While nitrogen mustard therapy is never considered curative, yet its role in alleviation of distress has never been questioned.

Results of nitrogen mustard therapy in terms of histology of the growth was studied by Lynch *et al* (1950) in 60 patients. They found that an aplastic growth was highly sensitive to nitrogen mustard, showing improvement in 83 per cent of cases, while 50 per cent of squamous-cell type and 33 per cent of adenocarcinoma also responded to the treatment. Kent and Reh (1950) treated a series of 19 cases of carcinoma of the lung and noted that the anaplastic growth responded well to nitrogen mustard. The observations of Levine and Weisberger (1955) is no less instructive. They found that only the 'small-cell carcinoma' out of the neoplastic carcinoma is truly mustard sensitive. Hatch *et al* (1956) studied a series of 198 patients and concluded that although chemotherapy could afford good subjective improvement, it could not prolong life. Improvement occurred in 46 per cent in this group.

The present study was undertaken to find out a method by which nitrogen mustard could be administered safely to the patient without precipitating any untoward side-effect. Such hazard had evoked the early authors to reject this method of treatment. It was also our aim to focus attention to a therapy which can produce symptomatic relief to a large number of intractable cases of bronchogenic carcinoma. Moreover it was thought necessary that the rural population who are left to their fate should get the benefit of some effective palliative treatment.

Methods and Materials

The investigation was undertaken in 11 cases of bronchogenic carcinoma during the years 1956-60. All the patients were males. Their age varied from 45 to 70 years. The cases were selected from the medical unit of Darbhanga Medical College Hospital.

The methods adopted in diagnosing a case of bronchogenic carcinoma included the clinical examination of the patient, cytological examination of the sputum, E.S.R. determination and radiographic examination. Bronchography was performed in only a few selected cases. And only those cases were included in the present series as were 'poor risk' for surgical intervention.

The administration of nitrogen mustard was planned in such a way as to avoid any side-effect. Of the general side-effects the most common is nausea and vomiting. Various drugs have been advocated for their prevention. They include barbiturates, hyoscine, antihistaminics and pyridoxine hydrochloride. In our series there were no cases with serious side reactions. Only three patients who showed a tendency to nausea and vomiting, were administered 1 to 1½ gr. of luminal. In a few cases coramine-ephedrine 0·5 ml. was given intramuscularly with a view to support circulation and for desensitisation. While other patients recovered with bed rest for an hour or so, when later they could take their meals with relish.

Many authors have recommended a dose of 0·1 mg./Kg. body weight on four successive days. Our regime begins with 5 mg. of nitrogen mustard (HN_2) intravenously. The preparation we used was mustine (Boots' brand of nitrogen mustard). One ampoule contains 10 mg. So only half of the dissolved content in distilled water was further diluted in 25 ml. of 25 per cent glucose solution. The injections were given very slowly by intravenous route. The second dose was repeated after 5-6 days with 7·5 mg., (i.e., ¾th of the dissolved content of 'mustine' ampoule) in the similar way. The third dose consisted of 10 mg.

Usually after the third dose a skiagram was taken and the result assessed. At this time R.B.C. count and Hb. percentage were determined. In the absence of anaemia full doses were repeated after two weeks. If evidence of anaemia appeared the cases were treated with vitamin B_{12}, folic acid and other suitable haematinics, and the interval of further treatment was prolonged for a month. Usually after the third injection, i.e., in about three weeks, the lesions disappeared or showed marked diminution in size. In certain cases the lesions persisted for about a month. All the cases in this study were uncomplicated ones, i.e., pleural effusion or other complications were absent and the growths were of moderate size.

After the course of injections the patients were asked to go home and report after six months, or earlier if any symptom caused them any distress. Where the lesion disappeared after the first course of treatment the lesions did not re-appear in two years. Yet every six months when the patients visited us for a check up, we gave them two or three injections. We report non-appearance of carcinomatous lesions in a follow-up period of three years.

Conclusion

Nitrogen mustard treatment is quite safe in moderate cases of bronchogenic carcinoma, since

no serious reaction was noted in our series. Considering the availability of and risk in lung resection nitrogen mustard therapy can be recommended as palliative treatment to be adopted in uncomplicated cases.

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PRACTITIONERS' SERIES

DRUG THERAPY IN PULMONARY TUBERCULOSIS

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The advent of new drugs during the last fifteen years constitutes a landmark in the history of antituberculous treatment. It is unnecessary to review the older drugs which are no longer used in the treatment of pulmonary tuberculosis. Since the discovery of streptomycin they have been completely discarded, and today chemotherapy of pulmonary tuberculosis involves the consideration primarily of only a few drugs of established value. But the discovery of new drugs has brought in its trail problems of keen interest to the clinician. Many of these like toxicity, mode of action, resistance, optimum dosage, best combinations, effective period of treatment etc., are dealt with in this article. The views expressed here represent, more or less, the presnt consensus of opinion on controversial issues.

STREPTOMYCIN

The isolation of streptomycin in 1944 marked a turning point in the chemotherapy of tuberculosis. After intramuscular injection, the drug is widely distributed throughout the body but does not penetrate into the cerebrospinal fluid. When a high blood level is attained the drug is probably bactericidal to tubercle bacilli, but with the dosage usually employed it exerts only a bacteriostatic effect.

Dosage—For an adult it is customary to prescribe 1 g. which is injected once daily for several weeks unless toxic symptoms appear earlier. The fundamental problem of drug resistance remains unsolved, but the concomitant use of streptomycin and PAS or isoniazid delays the emergence of germs resistant to either drug.

Toxic and hypersensitive reactions—Transient mild reactions such as circumoral paraesthesia, vertigo, headache and disturbance of visual accommodation may occur after each injection. They are believed to occur at the height of the blood concentration and are made worse by physical exercise. If such reactions are distressing, the injections should be given at night before retiring. Some hypersensitivity reactions may occur during the course of treatment. Nausea, loss of appetite and vomiting may be seen. Reactions in the skin may occur and consist of erythematous eruptions with itching, occasionally progressing to severe dermatitis if drug treatment is not stopped. This is usually due to PAS in the combined treatment.

As regards toxic action of streptomycin upon the auditory and vestibular divisions of the eighth nerve, distinct difference has been noted between streptomycin and dihydrostreptomycin. Whereas streptomycin affects the vestibular rather than the auditory division, dihydrostreptomycin affects the auditory rather than the vestibular division of the 8th nerve. In some patients severe vestibular damage may be caused by streptomycin in a matter of days, and this is particularly liable to occur if there is impairment of renal function. For this reason streptomycin is regarded as potentially dangerous in the presence of kidney disease. Elderly people are particularly prone to ototoxicity.

Streptomycin therapy should be suspended as soon as there are indications of hypersensitivity or toxic phenomena, and in most instances symptoms will promptly abate. Antihistaminic drugs may afford some relief, and in severe reactions corticosteroids have proved very useful. Once the condition has subsided it is dangerous to prescribe the drug again unless the patient has been desensitised. This can be accomplished by initially giving a small dose (0·05 g.) of the drug and gradually increasing the dose over a period of two or three weeks until 1 g. daily can be tolerated. In obstinate cases the drug can be continued under cover of corticosteroids. It may be necessary to substitute PAS or isoniazid, but hypersensitivity to one drug is often accompanied by hypersensitivity to others.

The prognosis for damage to the vestibular and auditory nerves is doubtful, as no treatment is known. In younger subjects recovery may be full in the sense that it can fully compensate for the disability. However, this compensatory mechanism cannot so readily be brought into play in older subjects, and although their vertigo and ataxia may be severe, some restoration of balance will take place. Therefore, streptomycin, in daily dosage of 1 g., should not be used over a long-period of time in elderly arteriosclerotic patients. Thrice weekly injections over a relatively short period should be given. Use should also be made of a combination of streptomycin and dihydrostreptomycin (ambistryn, duplomycin). Because of their different mode of action, this combination reduces the toxic effects of both drugs.

Para-Aminosalicylic Acid (PAS)

The bacteriostatic action of PAS is of an inferior order to that of streptomycin but this disadvantage is to some extent offset by the less frequent and slower emergence of resistant organisms.

Dosage—From 16 to 20 g. of PAS daily, in four divided doses, are commonly prescribed. It is now believed that from 10 to 12 g. of the drug daily is effective for clinical purposes, and it is unwise to give a lesser dose.

Side-effects—Side-effects may be divided into two broad groups, viz., (1) the immediate symptoms of intolerance, and (2) toxic and hypersensitive reactions.

Immediate symptoms of intolerance are alimentary disturbances, e.g., nausea, vomiting and diarrhoea and they frequently preclude the taking of the optimum dosage. Antrenyl, which reduces gastric motility and spasm, has been successfully used to counteract some of these symptoms in the dose of 5 mg. three or four times a day. It may be necessary to use the drug for only a short period. Probenecid (benemid) given in doses of 0·5 g. six-hourly with PAS enhances the plasma concentration of the drug by blocking excretion by the kidneys. Therefore, a daily dose of 8 g. of PAS, which is usually within the limit of tolerance, will be sufficient to maintain an effective blood level. A pharmacological modification, B PAS or therapas, has been found to be more slowly absorbed and excreted less rapidly than the sodium salt. Symptoms of intolerance are less evident.

Toxic and hypersensitive reactions—Sensitisation reactions, heralded by fever and skin rashes, may appear gradually. Other side-effects include headache, conjunctival inflammation, lymphadenopathy, angioneurotic oedema, jaundice and leucopenia. Of particular interest is hypoprothrombinaemia with a tendency to haemorrhage, which can be counteracted by giving vitamin K. Severe haemorrhage resulting from the use of PAS is uncommon and it is unnecessary to give vitamin K as a routine. Prolonged administration of PAS may give rise to hypothyroidism and goitre. This can be corrected by giving thyroxine or thyroid extract.

In most instances the side-effects resulting from PAS therapy subside as soon as the drug is withdrawn. Antihistaminic preparations are useful. Corticosteroids are valuable in tiding a patient over an uncomfortable and dangerous period. Desensitisation can be accomplished by giving initially a small daily dose (0·5-1·0 g.), and increasing it gradually until the full maximum dose is reached in 2 to 4 weeks.

Clinical application—No indications exist for using PAS as a single antituberculous agent. It should always be used in combination with streptomycin and/or isoniazid or a similarly effective drug.

Isonicotinic Acid Hydrazide (Isoniazid)

It is rapidly and completely absorbed by the alimentary tract, and is diffused freely into all tissues, including the cerebrospinal fluid.

Dosage—3 to 7 mg. per Kg. body weight daily (i.e. 200 to 300 mg. daily) in divided doses is now usually prescribed. In view of the development of resistant strains in the second to third month when the drug is used alone, isoniazid is given, as a rule, together with streptomycin or/and PAS to delay the emergence of resistant organisms.

Toxic reactions—Isoniazid is remarkably free from toxic side-effects so long as the usual therapeutic dosage is adopted. Dryness of the mouth, constipation, with hesitancy and delay in initiating micturition have been attributed to the action of isoniazid upon the autonomic nervous system; vertigo, insomnia, elation and sometimes depression, muscular twitching and exaggerated deep reflexes are related to the involvement of the central nervous system. Mental changes, consisting of an alteration in personality towards an aggressiveness with hallucinations, are occasionally encountered. Particular care should be exercised in the treatment of epileptic patients with isoniazid. Prolonged use of the drug may be accompanied by a deficiency of pantothenic acid and nicotinamide. Peripheral neuritis has been noted. Isoniazid administration is accompanied by an increased excretion of pyridoxine in the urine, and pyridoxine is a drug of proved value in the treat-

ment of reactions due to this cause. Other rare manifestations of toxicity are nausea, vomiting, diarrhoea, blood dyscrasia, etc.

Clinical application—Isoniazid, in combination with streptomycin or PAS, has proved very useful. Both combinations are effective. However, claim has been made that isoniazid is effective even when given alone, because tubercle bacilli made resistant to isoniazid have diminished virulence. This fact also warrants the continuation of therapy with isoniazid despite any evidence of resistance. However, as some of the isoniazid-resistant bacilli retain normal pathogenic power and because of the possibility of back-mutation from attenuation to full pathogenicity, it would be necessary to prevent the development of isoniazid resistance by combining it with various antituberculous remedies.

Effect of Chemotherapy on Tuberculous Lesions

There is an essential difference between the action of streptomycin and isoniazid upon the tuberculous lesion. Whereas streptomycin leads to healing by formation of fibrous tissue, isoniazid does so by resolution and absorption of the exudate. The power of penetration into the cell is one of the main attributes of isoniazid. Whereas the tubercle bacilli lying within the macrophages are protected against the action of streptomycin except in high concentration, both intracellular and extracellular organisms are equally accessible to isoniazid at any given concentration.

Recent exudative lesions prior to caseation yield completely to chemotherapy, but the healing effect of chemotherapy upon lesions which have already progressed to caseation or cavitation is rather uncertain. However, even though chemotherapy alone may not be effective in bringing about resolution once caseation has occurred in a focus of moderate size, it is helpful in preventing further spread of the disease during the period of treatment, and allows time for the natural defences of the body to exert a healing effect. While soft-walled cavities usually close by chemotherapy, chronic thick-walled cavities are largely recalcitrant to the action of drugs, and resistant organisms emerge in them more rapidly than in any other type of lesion. Cavities which do not disappear within he first six to nine months are unlikely to close completely and permanently.

It is quite common to find 'air spaces' persisting in the lung after several months of chemotherapy in spite of considerable local improvement and even of a negative sputum culture. These 'open negative lesions' may be due to several causes, such as frankly tuberculous cavity, a tuberculous bronchiectasis, a cystic space with no evidence of tuberculosis demonstrable in the wall (open healing of the cavity), a similar cystic state but only partially healed, and emphysematous bullae apparently unconnected with tuberculous disease. Consequently, opinion is divided as to the correct treatment of the end-stage or bullous cavity, whether it should be treated radically by collapse therapy or resection or whether it should be managed conservatively.

Clinical Application of Chemotherapy

Streptomycin, PAS and isoniazid still remain the most effective weapons in our therapeutic armamentarium. Present knowledge makes combined use of the drugs mandatory in order to prevent emergence of resistant forms, and also to have some additive effects. It must be emphasised that, whatever the combination, each drug must be given in full bacteriostatic dose, because if resistant strains to one preparation are allowed to emerge, organisms resistant to the other drugs will rapidly follow. It was at one time believed that streptomycin, by virtue of its more prolonged inhibitory action upon the multiplication of the bacilli, would be equally efficacious if given on alternate days, or even twice a week, together with the daily administration of a 'partner' drug. Such a regime would have the advantage of lessening the risk of toxicity and reducing the number of injections. In practice it has been found that spacing the injections of streptomycin in this way can only be condoned provided that both isoniazid and PAS are given daily.

When planning chemotherapy it is necessary to take into account the fact that tubercle bacilli in the sputum of newly diagnosed and untreated patients may already be resistant to one or more of the standard antituberculous drugs. This finding implies that the disease is due to infection with resistant organisms and is a legacy of past failures of chemotherapy or inadequate treatment. The number of such patients may not be large at the present moment but it is likely to increase and many clinicians are advocating the use of all three drugs at least until the results of sensitivity tests are known. Indeed the view is gaining ground that if maximum advantage is to be derived from chemotherapy, the triple-drug-therapy should be adopted at least during early months. Inadequate treatment during the first twelve months following diagnosis is now considered the most common cause of therapeutic failures. The usual adult dose recommended is 100 mg. of isoniazid three times daily, and 4 g. of PAS three times daily after food. Streptomycin in doses of 1 g. intramus-

cularly should be injected daily to younger patients with moderate or severe symptoms, and either on alternate days or twice weekly to most other patients. After a few months, however, PAS and isoniazid administered daily would be sufficient for most patients until a total of 12 to 18 months of such treatment has been completed without interruption. Inadequate treatment is often the fault of the patient ; but at times the patient is encouraged to accept incomplete treatment by a physician who does not appreciate fully the potentialities of the disease. "Combined multiple drug therapy, with adequate dosage, consistently and uninterruptedly given over an extended period" is the accepted formula for the treatment of pulmonary tuberculosis.

Long-term chemotherapy is now being employed on an increasingly wide scale to the exclusion of other methods of treatment. Indeed, many patients with minimal or moderately extensive disease are treated on a domiciliary or ambulant basis from the beginning. Many patients suffering from less severe forms of pulmonary tuberculosis can be as effectively treated with chemotherapy while working as while resting in bed. Chemotherapy in conventional doses can be maintained continuously for many months with little risk of the development of toxic symptoms, and, in some instances, the lesions can be 'sterilised' and all activity eliminated. While all patients, between the two extremes of a minimal reversible lesion and advanced caseopneumonic lesion, would not need the same drug regimen and for the same period, most patients would need chemotherapy for at least a year. Many workers, however, advise a longer period, while a few have spoken in terms of 'life-long' chemotherapy in advanced or moderately advanced disease if the risk of a later breakdown has to be averted. Prolonged chemotherapy is proving a definite method of treatment for a gradually increasing number of patients for whom collapse therapy or resection would formerly have been advised.

Alternative Drugs in Failure of Classical Tuberculostatic Therapy

Surgical treatment, i.e., resection or permanent collapse, is not considered unless it is clear that medical treatment will not suffice to control the disease and protect the patient from later risk of recurrence. Ordinarily this decision cannot be made until after a trial of medical therapy has been completed. Usually it is possible to forecast the adequacy of medical treatment after six to nine months of therapy.

Pulmonary resection is the ideal treatment for a persistent cavity, especially when it appears likely that the disease, as visible in the x-ray picture, can be removed without great sacrifice of pulmonary function and when the patient is sufficiently young and vigorous to withstand the surgical procedure. Cavities which cannot be resected and which cannot be closed by some simpler method may require surgical collapse by way of thoracoplasty, plombage, etc. The resection of residual non-cavitary lesions of pulmonary tuberculosis is less commonly favoured now than it was a few years ago. However, resection is recommended, provided it is feasible, for large lesions (greater than 2·0 cm. in diameter) which cast dense homogenous, rounded and sharply-demarcated shadows, as these are likely to be blocked cavities filled with caseous material, often containing tubercle bacilli and apparently capable of becoming reactivated in the immediate or remote future.

There remains for consideration the group of patients with unstable disease where the organisms in the sputum are resistant to the three major antituberculous drugs. Further treatment with standard chemotherapy can offer little hope of improvement and it becomes necessary to resort to alternative antituberculous drugs. The latter are less satisfactory than streptomycin, PAS and isoniazid, and exhibit definite and sometimes serious toxicity in a number of cases. They should not be employed for routine clinical use in long-term treatment of pulmonary tuberculosis. These drugs have proved of value as a 'cover' for surgical treatment. Drugs like viomycin, pyrazinamide and cycloserine have helped the surgeon to prepare the patient before undertaking surgery in advanced cases with positive sputum and drug-resistant organisms, with low incidence of bronchopleural fistula and empyema and low mortality rate. Used in this way, these alternative drugs offer a valuable addition to our therapeutic armamentarium. Otherwise, they have only limited place in the retreatment of patients with advanced, and chronic tuberculosis, who are resistant to conventional therapy. Where surgery is not possible, not more than 20 per cent of such patients are likely to be salvaged. Such patients should be carefully selected and treated under close supervision.

Thiosemicarbazones—Of many compounds investigated, the most active was amithiozone (conteben or T.B.I.). It is customary to start with a small dose, such as 25 mg. once or twice a day, and the dose should be cautiously increased over 10 to 14 days until 25 or 50 mg. are given, three or four times a day. When given alone it leads to the emergence of resistant organisms. Manifestations of toxicity are frequent and may

be severe. Dangerous signs include anaemia, liver or kidney damage and skin eruptions.

Viomycin—This antibiotic is active against streptomycin-resistant organisms, but it is more toxic and less efficacious than streptomycin. The dose is 2 g. intramuscularly twice a week. It may be combined with a second antibacterial agent, e.g., terramycin, 5 g. daily. Its use is limited by its high cost.

Terramycin (*oxytetracycline*)—While active against streptomycin-resistant organisms, this broad-spectrum antibiotic possesses a bacteriostatic action against tubercle bacilli, which is less powerful than that of streptomycin. It has also the capacity to delay or prevent the emergence of strains resistant to streptomycin or isoniazid. The emergence of organisms resistant to this antibiotic is slow. The large dose of terramycin (5 g. daily, in 4 divided doses) used for relatively long periods is frequently attended with gastro-intestinal disturbances. A vitamin-B preparation should be administered throughout the period of treatment.

Iproniazid—The high incidence and intensity of the side-effects, by way of twitching of the limbs, hesitancy of micturition, headache and insomnia, postural hypotension, nightmares, confusional psychosis, etc., of this derivative of isoniazid outweigh any advantage that it may have on isoniazid.

Nupasal-213 (*salizid*)—This compound, related to isoniazid, does not differ in action from that of isoniazid, nor is it effective against strains resistant to isoniazid. The two drugs are said to differ, however, in their action upon the nervous system. It is claimed that peripheral neuritis does not occur with nupasal-213 as frequently as with isoniazid and that an epileptic patient whose attacks are made more frequent by the use of isoniazid can be given an equivalent dose of nupasal-213 without incurring the risk.

Dipasic—This is the name given to a chemical compound of isoniazid and PAS. It has been claimed that this compound exerts an action independent of its two components and that it is effective against organisms resistant to isoniazid and PAS. It has, however, been found that in the body, if not *in vitro*, dipasic is broken down into its two constituents and the amount of PAS liberated is insufficient to delay the emergence of strains resistant to isoniazid.

Pyrazinamide (*aldinamide*)—The antituberculous properties of this organic chemical compound are handicapped by the emergence of resistant organisms in a short time and by the appearance of toxic reactions especially hepato-toxicity which may develop without warning and may be serious or even fatal. However, pyrazinamide in low dosage (about 1·5 g. daily) combined with isoniazid is an effective regime for a limited period (about 6 months) provided the organisms in the sputum are sensitive to isoniazid. It is contra-indicated in any patient with cirrhosis, chronic alcoholism or evidence of liver damage.

Cycloserine (seromycin, oxamycin)—This antibiotic has definite but limited antituberculous effect. Neurotoxicity, manifested by mild to severe mental symptoms, psychosis or epileptiform convulsions may present a serious problem in connection with cycloserine therapy. The safe dose is 0·25 g., given twice a day. This imposes a limit to the value of the drug. The total daily dose can however, be increased up to 1 g. provided this figure is reached gradually, and the drug is given in 3 or 4 divided doses. Each individual dose should not exceed 0·25 g. Cycloserine should be used with the utmost caution, if at all, in patients with damaged kidneys, mental abnormality and neurological disorder, in epileptics, and in those bordering on congestive cardiac failure.

Corticosteroids

Corticosteroids have no specific action upon the tubercle bacillus. Their action is towards limiting the inflammatory reaction to which the bacillus gives rise and inhibiting the formation of granulation and fibrous tissues. They have no effect upon fibrous tissue which has already formed. It was, therefore, apparent that corticosteroids would exert a harmful effect upon tuberculous infection by reducing the inflammatory response of the body and offering the bacilli a clear field in which to multiply. However, it was soon realised that the result would be altogether different if the corticosteroids were used in conjunction with effective chemotherapy, because the elimination of the inflammatory exudate and cellular response would produce rapid remission of toxic symptoms and facilitate the penetration of antituberculous drugs in the infected foci. Consequently, chemotherapy is frequently employed under a corticosteroid cover for promoting a more complete resolution of the lesion.

There is little to choose between corticotrophin and cortisone. For systemic therapy prednisone and prednisolone, which are identical in therapeutic effect and are four to five times as active as cortisone weight for weight, are preferred because they possess much less salt-retaining properties and do not give rise to oedema and are therefore more suitable for prolonged administration. Prednisone

or prednisolone, 15 to 20 mg., may be given in divided doses with appropriate chemotherapy. The length of the course of treatment depends on the type of disease, the response to therapy and the manner in which the drugs are tolerated. The therapy, however, can be safely continued for about three months. Some authorities recommend the use of a smaller physiological dose. When it is decided to discontinue treatment the daily dose should be slowly reduced to avoid the 'rebound phenomenon'. Some workers advise the substitution of A.C.T.H. for prednisone during this scaling down period to give necessary stimulus to the adrenals.

Indications—The use of corticosteroids as adjunct to other anti-tuberculous drugs in the treatment of pulmonary tuberculosis, especially in the more serious and acute forms of disease, has opened a new chapter. But there is no justification to their indiscriminate use in every new case of pulmonary tuberculosis or in re-treatment of cases. It is difficult to give precise indications for their use at present but they have been found to be especially advantageous in the treatment of the following conditions:

1. Tuberculous pleural effusion, for achieving more rapid absorption of fluid and thus reducing the risk of pleural thickening with loss of respiratory function.
2. Acute pneumonic tuberculosis and acute exudative pulmonary tuberculosis.
3. Hypersensitive reactions to chemotherapeutic drugs.
4. Tuberculous pericarditis.
5. Tuberculous meningitis.
6. Miliary tuberculosis.
7. Tuberculous adenitis, with or without sinus formation, to bring about quicker regression of glands.

Side effects—These are rare following a short course of therapy, and the more serious of them can be avoided by discrimination in the selection of patients and early recognition of impending trouble. An early sign of undesirable side-effect is rounding of the face ('moonface'). Other effects sometimes observed are mild hirsutism, acne, cutaneous striae and pigmentation. Oedema can be limited by the use of mercurial diuretics and the restriction of salt intake. Potassium depletion should be guarded against by giving supplement of potassium chloride. Prednisone and prednisolone are much less likely to cause potassium loss, salt retention and oedema.

Contra-indications to corticosteroids are heart disease, hypertension, psychotic tendencies, diabetes mellitus and peptic ulceration.

SPECIAL ARTICLE

SULPHAMETHOXYPYRIDAZINE IN THE TREATMENT OF VENEREAL DISEASES

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Of the commonly encountered group of venereal diseases, at least three, viz., gonorrhoea (Hesseltine *et al*, 1945; Ill, 1945; La Towsky *et al*, 1941; McLachlan,, 1945), chancroid (Hutchison, 1938; Kornblith *et al*, 1939; Long, 1948; Taggart *et al*, 1949) and lymphogranuloma venereum (Brandt and Greenblatt, 1941; Costello and Cohen, 1941; Graham and Norris, 1941; Hawking and Lawrence, 1951; Stein, 1940), respond well to sulphonamide therapy. Although antibiotics are preferred by some venereologists, the increase in incidence of severe allergic reactions, especially to penicillin, and the risk of masking a concomitant syphilitic infection, tend to favour the use of sulphonamides in conditions where they are known to be effective.

Among the earlier sulphonamides, the sulphapyrimidines were considered the least toxic and most effective; but the recommended daily dosage of 4 to 6 g. when given over a period of several days or weeks as in the case of lymphogranuloma venereum, sometimes produced undesirable side-effects.

A number of factors tend to influence the incidence and severity of toxic reactions caused by sulphonamides, but there is no doubt that, within limits, these are proportional to the dosage and duration of therapy. From an extensive review of the literature, Lehr (1948) has shown that increasing sulphonamide dosage leads to greater frequency of sensitisation reactions, and he suggested that sensitisation reactions will rarely occur with sulphonamide dosages of less than 2 g. daily. In fact, the rationale of using mixtures of 2 or 3 sulphonamides stems from the observation that, when no more than 2 to 3 g. of any individual drug is given, the dangers of crystal formation in the urinary tract as well as the production of other toxic reactions are greatly reduced. Hence,

it appears that a sulphonamide, fully effective in a dosage of less than 2 g. daily, would to a large extent, obviate the undesirable side-effects of this valuable group of drugs.

A recent introduction in the field of chemotherapy is sulphamethoxypyridazine (Lederkyn). This drug is rapidly absorbed from the gastro-intestinal tract and adequate therapeutic blood levels are attained within 1 to 2 hours after administration of the recommended dose (Boger *et al*, 1956 ; Nichols and Finland, 1957). Acetylation of the drug in the body is low, as only 6 to 20 per cent of the drug in the blood is acetylated (Boger *et al*, 1956). Sulphamethoxypyridazine is excreted very slowly in the urine (Nichols *et al*, 1956). It has been shown that only about 1/3 of the ingested drug is excreted in 24 hours and 50 per cent in 72 hours. After a single dose of 2 g., measurable quantities of the drug have been found for as long as 168 hours (Boger *et al*, 1956). The high solubility of the drug in the urine over the usual acid and alkaline range, combined with low acetylation and slow excretion, reduce the risks of crystalluria and maintain high blood levels for prolonged periods. Good tissue penetration is suggested by the diffusion of the drug into the cerebrospinal fluid (Boger *et al*, 1956) and therapeutic levels obtained in the various body fluids.

Thayer *et al* (1959) have shown that the *in vitro* susceptibility of gonococci, to sulphamethoxypyridazine is similar to that of sulphadiazine. Krishnamurthi (1959) has reported good results in 10 cases of lymphogranuloma venereum treated with sulphamethoxypyridazine. It therefore appeared to be of interest to try this new drug in sulphonamide sensitive venereal infections.

Method and Materials

Sixty-nine cases included in this study were as follows : acute gonococcal infections 30 cases ; chancroid 30 cases and lymphogranuloma venereum 9 cases. All the patients in this series, were males. The criteria for selection were that they must be fresh in cases who have not received any other form of therapy previously and in whom all investigations have ruled out the possibility of mixed infections, i.e., they must have had only one of the above mentioned infections.

The gonococcal cases came under observation 2-3 days after the onset of urethral discharge and burning during micturition. The patients suffering from chancroid, reported after 5-6 days of the appearance of the sores and all of them had non-fluctuating buboes. Those having lymphogranuloma venereum complained of the presence of a mass of glands and discomfort in the inguinal region of 10-11 days' duration when first seen, and three cases had bilateral involvement and six had unilateral.

Investigations

The following investigations were undertaken in all the cases : (1) microscopic examination of the smears of the urethral discharge in cases of gonorrhoea and discharge from sores in chancroid, before treatment and during follow-up ; (2) cultures on blood agar medium, in all cases of gonorrhoea, before and after treatment ; (3) Kahn and V.D.R.L. tests to exclude syphilis ; (4) Frei test —only cases who were positive were treated for lymphogranuloma venereum ; and (5) routine urine examination before, during and after treatment.

Treatment

After diagnosis was established, all the patients received sulphamethoxypyridazine tablets in the dosage of 1 g. (2 tablets) twice daily on the first day, followed by 0·5 g. (1 tablet) twice daily on subsequent days. The maximum period of therapy in cases of gonorrhoea and chancroid was 10 days. In lymphogranuloma venereum, the maximum period was 30 days with an average of 22 days. No other drugs except those contained in the alkaline mixture was given during treatment with sulphamethoxypyridazine. The patients suffering from gonorrhoea and chancroid were treated as out-patients whereas cases with lymphogranuloma venereum were hospitalised during treatment. Although the patients were seen daily, a complete check-up for the evaluation of the treatment was done after 10 days in the cases of gonorrhoea and chancroid and after 30 days in those of lymphogranuloma venereum.

In the final assessment, the patients were grouped as cured, improved or failures. Those patients in whom thorough clinical and laboratory investigations revealed no evidence of infection after the follow-up period, were declared as 'cured'. The patients who showed clinical improvement after treatment but did not turn up for the final check-up, were declared as 'improved' and those that did not show satisfactory improvement during the period of therapy, were declared as 'failures'. Although all cases of gonorrhoea showed clinical improvement and urethral discharge disappeared at the end of 48-72 hours, those that gave positive cultures on blood agar at the end of 10 days, were taken as failures. The cases that failed to show satisfactory improvement with sulphamethoxypyridazine were treated satisfactorily with antibiotics. The results are shown in Table 1.

TABLE 1—SHOWING RESULTS OF TREATMENT WITH SULPHAMETHOXYPYRIDAZINE

Disease	No. of cases	Cured	Improved	Failures
Acute gonorrhea ..	30	20	7	3
Chancroid	30	22	4	4
Lymphogranuloma venereum ..	9	9	—	—
Total	69	51	11	7

DISCUSSION

The assessment of the value of a given drug in venereal infections is difficult unless one can make sure that the patient has not been exposed to reinfection during follow-up, either from the marital partner or some other source. In these series, no attempt was made to examine or treat the sexual partners. Although clinical and symptomatic improvement is an indication of good response, one feels diffident in pronouncing the cases as cured unless laboratory tests are found to be negative. Thus in our series, the actual cure rate may be much higher than what is indicated in Table 1 since at least some of the 7 cases of gonorrhoea and 4 cases of chancroid who did not return for final check-up may have been cured.

In this study, the response to sulphamethoxypyridazine was comparable to that obtained with other sulphonamides. In the lymphogranuloma venereum and chancroid cases, lymphadenopathy subsided without suppuration or surgical intervention. Even though some cases with lymphogranuloma venereum received the drug for 3 weeks or more, none of the patients complained of any toxic effects referable to the drug and routine urine examination during treatment revealed no evidence of renal dysfunction or crystalluria. This is significant in view of the fact that the dosage used by us was double that recommended by the manufacturers. The recommended dosage is 1 g. (2 tablets) on the first day, followed by 0·5 g. (1 tablet) daily, and most published reports on this drug indicate that this dosage is adequate for treating most sulphonamide-sensitive infections.

SUMMARY

This study was undertaken to determine the efficacy of sulphamethoxypyridazine, a new long-acting sulphonamide drug in patients suffering from gonorrhoea, chancroid and lymphogranuloma venereum. The drug was given in a dosage of 2 g. initially, followed by 1 g. daily and the results obtained compared favourably with other forms of treatment. We have not encountered any side effects even of a minor nature, in any of the patients. The low dosage and low cost of the drug are additional advantages.

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CASE NOTE

GENICULATE HERPES WITH HERPES OF THE FIFTH CRANIAL NERVE AND POSTERIOR ROOTS OF FIRST TWO CERVICAL NERVES WITH FACIAL PARALYSIS

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Herpes is a virus infection with acute inflammation of the posterior nerve root ganglion of similar histological characteristics as lesions of acute anterior polio-

myelitis. The relation between herpes and chickenpox is wellknown. Recent work of Weller and Witton (1958) has confirmed the earlier conception that these two diseases are different clinical manifestations of the same aetiological agent. The elementary bodies (Herpes virus varicella) obtained from vesicles of the two diseases are indistinguishable and are described as brick-shaped bodies averaging 210 to 238 millimicron in diameter. The reason for different clinical manifestations of the two diseases is not completely explicable. Cephalic zoster rarely affects more than one cranial nerve. In the case reported here the patient showed involvement of all the three branches of the trigeminal nerve (V), the facial nerve (VII) and the upper two cervical nerves in combination which is rarely seen.

Case Report

S.M., male, aged 70, complained of pain behind the left ear, in the left external auditory meatus and in the adjoining skin of the pinna and in the whole of the left side of the face lasting for two days. The vesicles of herpes appeared all over this area on the third day. The vesicles were scattered over the left cheek, jaw, forehead, exactly half of the anterior part of the scalp, pinna, and behind the ear, being plentiful on the left eyebrow and on the upper eyelid. There was intense pain, and cutaneous hyperaesthesia with burning sensation all over the affected part. The left eye was swollen with oedema of the upper eyelid. There was watering from the left eye. Ten days after the appearance of herpes vesicles, the patient developed left facial paralysis of the lower motor neurone type. The face was drawn on the opposite side and the paralysed side appeared flat and expressionless. The left nasolabial fold became less distinct. There was lagophthalmos, and loss of sensation of taste on the anterior two-thirds of the left side of the tongue. Due to intense pain his sleep was much disturbed.

The patient was given analgesics and hot fomentation with very little effect. He was put on dexamethesone (decadron) orally, along with tablets of aneurine hydrochloride (berin) and peloninamide. Spasmocibalgin, aspirin and novalgin tablets gave him temporary relief from pain. For disturbance of sleep one largactil tablet (25 mg.) was given at night. Vitamin B_{12}, 100 μg., with vitamin B complex, 1 ml., was injected daily for ten days.

Locally, relaxyl and xylocaine ointment (5 per cent) were used. The patient made good recovery and all vesicles dried up, though some pain still persisted. Facial paralysis gradually improved and the left nasolabial fold became normal. The sensation of taste returned to normal and the patient was able to masticate. He developed postherpetic neuralgia which persisted for two months.

In his family a child aged four years developed chickenpox (varicella) after fifteen days of the appearance of herpes in the patient.

Discussion

Herpes affects usually one cranial nerve. When the trigeminal nerve is involved, the supra-orbital branch of the ophthalmic nerve is usually involved in cases of ganglionitis of the Vth nerve. In the case reported here, the patient had herpes of all the three branches of the trigeminal nerve (V), the facial nerve (VII) with chorda tympani nerve and posterior roots of the first two cervical nerves.

The site of infection in the trigeminal nerve (V) is the gasserian ganglion which is situated on the fifth nerve after leaving the pons and passing forward over the petrous portion of the temporal bone. Here all the three nerves, viz., ophthalmic, maxillary and mandibular are given off. The site of infection in the facial nerve (VII) is the geniculate ganglion which is situated in the fallopian aqueduct. There was involvement of the chorda tympani nerve and pars intermedia or the nerve of Wrisberg as there was loss of the sensation of taste in the anterior two-thirds of the left side of the tongue.

Geniculate ganglionitis leads to pain in the external auditory canal and often the diagnosis is missed and the patient is given erroneous treatment or is wrongly operated upon. James Ramsay Hunt first drew attention to geniculate herpes, which is known as Hunt's syndrome. According to Hunt facial paralysis always follows geniculate herpes and many such cases where herpetic eruption is minimum, escape accurate diagnosis. Facial paralysis results from neuritis of the seventh cranial nerve. It is due to viral infection of the nerve as it passes through the geniculate ganglion. Herpetic eruption behind the ear indicated ganglionitis of the first and second cervical posterior root ganglia.

Another point of interest is that one of the children in the family got chickenpox fifteen days after the appearance of herpes in the case described here.

Summary

An unusual case is recorded where there was simultaneous herpetic involvement of all the three branches of trigeminal nerve, facial nerve, chorda tympani nerve and posterior roots of first and second cervical nerves. The patient developed facial paralysis from which he recovered.

Acknowledgment

My thanks are due to Dr. A. J. Kohiyar for his valuable guidance and suggestions.

Reference

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JOURNAL OF THE
INDIAN MEDICAL ASSOCIATION

CALCUTTA, MARCH 16, 1961

PULMONARY FUNCTION TESTS

The last 20 years have seen a remarkable development of tests, based on physiological principles, designed to assess quantitatively the degree of impairment of pulmonary function. Many of these tests have passed the stage of research and have established their clinical value for chest physicians and thoracic surgeons. These tests are classified into four groups according to the four basic processes involved in respiration, viz., (A) ventilation, (B) intrapulmonary gas mixing, (C) diffusion and (D) perfusion.

A. Usually about 1/3rd of pulmonary ventilation is wasted in the dead-space (dead-space ventilation) and the remaining 2/3rds is utilised to refresh the alveolar air (alveolar ventilation). Pulmonary ventilation can be measured easily, but measurement of dead-space ventilation requires analysis of expired air. Calculation of alveolar ventilation (pulmonary ventilation minus dead-space ventilation), therefore, can only be done if facilities for gas analysis are available.

Increase in physiological dead-space leading to alveolar hypoventilation is characteristic of emphysema due to ill perfusion of well ventilated alveoli. Alveolar hypoventilation always leads to increased pCO_2 and decreased pO_2 of the arterial blood. The former results in increased CO_2 content of the arterial blood but the oxygen saturation of the arterial blood is not altered significantly due to the shape of oxygen dissociation curve. A simple method is now available for determination of arterial pCO_2. [1]

Vital capacity (the maximum volume of expiration following maximum inspiration) is the oldest test for the lung volume to be measured[2] and is still the only measurement made by many clinicians. It is a 'static' lung function test and by itself is of limited usefulness in assessing respiratory disability. A patient with reduced vital capacity may have good ventilatory function and *vice versa*. Many respiratory physiologists recommend that such an unreliable test should be 'eliminated'[3]. However, serial measurements of vital capacity in an individual patient can be of considerable value in following the course of many cardiopulmonary disorders. It will be unwise to give up this simple test from routine clinical investigations. The Europeans and Americans are believed to have a vital capacity higher than that of the Indians. Fortunately, data on vital capacity of normal subjects are now available from different parts of India[4,5]. They may be utilised for calculating predicted vital capacity for comparison with that observed in a particular patient. With a suitable spirometer it is possible to record two stage vital capacity, in which the inspiratory capacity and expiratory reserve are determined separately and then added. In 'obstructive lesion' of the lungs the two stage value often exceeds the one stage by as much as a litre. This is due to 'air-trapping' which occurs in these patients when they attempt to expire maximally in one stage vital capacity procedure.

The fraction of vital capacity which is expired in the first second of forced expiration (FEV_1) can be easily measured with a spirogram. A normal subject expires about 80 per cent of his V.C. in the first second. A patient with obstructive lesion (asthma, emphysema) can expire a much less amount within the same period.

An important advancement was the introduction of methods for the determination of residual volume (RV) which is the volume of gas remaining in the lungs after maximal expiration. In actual practice functional residual volume (FRV), that is the volume of gas remaining in the lungs after ordinary expiration, is first determined and the expiratory reserve volume is subtracted from it to obtain the residual volume.

Functional residual volume can be determined by open-circuit method[6] provided facilities for gas analysis and pure O_2 (N_2-free) are available. The close-circuit method[7] requires less technical skill. A known quantity of helium is introduced into the circuit while the subject breathes through it and FRV is calculated from the degree of dilution of helium, which is estimated with a katharometer. A third method of FRV determination is with a

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body plethysmograph[8]. The subject, enclosed in an air-tight box, makes forceful respiratory effort against a resistance. The pressure variations in the box is related to the volume of air in the thorax.

Total lung capacity (TLC) is computed by adding vital capacity to the RV or inspiratory capacity to the FRV.

An increase of RV indicates hyperinflation of the lungs from any cause and in an emphysematous patient this is the best yardstick to measure the clinical course of the disease. The ratio RV/TLV varies between 20 to 35 per cent in young adults. An increase of this ratio occurs if either the RV is increased (as in asthma or emphysema) or the TLV is decreased (as in fibrosis or congestion). However, an increase of this ratio above 35 per cent is not invariably associated with respiratory insufficiency. In many healthy old people this ratio may be as high as 50 per cent.

Maximal breathing capacity (MBC) is defined as the maximum volume of air that can be breathed per minute. The subject is asked to breathe as quickly and as deeply as possible for 15 seconds. The expired air is collected in a Douglas bag and measured. A better method is to use a spirometer and take the respiratory tracing on a slow moving kymograph. A significant correlation has been found between MBC and the oxygenating function of the lungs. Thus the importance of MBC as a lung function test has been well-established. Workers from different parts of India have published data of MBC on normal subjects[6, 9, 10, 11] and these data should be utilised for comparison of results obtained on patients.

MBC is reduced by any factor which interferes with the 'bellows action of the lungs'. Patients with obstructive lesion of the lungs (e.g. emphysema) get a more significant reduction of their MBC as compared to vital capacity, whereas the reverse is true for patients with restrictive lesion (e.g. fibrosis). The ratio of the percentage of predicted MBC to the percentage of predicted vital capacity is known as 'air velocity index'. A low index signifies obstructive lesion and a high index is obtained in restrictive lesion of the lungs.

A crude method of testing expiratory obstruction is to ask the patient to blow out a match stick held in front of his mouth. A much more scientific method of testing is to determine what is known as maximum expiratory flow rate (MEFR). An instrument which is essentially an anemometer[11] is now available for this purpose. Normal value of MEFR is 500 lit./min. It is reduced in expiratory obstruction. MEFR below 20 lit./min. is considered serious, because the patient is then unable to cough out the expectoration.

Broncho-spirometry offers a technic by which it is possible to measure the ventilation and oxygen consumption of each lung separately. In the lateral position of a patient the oxygen consumption and the ventilation of the lower lung are increased. This finding is so constant that it can be used as a test for the assessment of the function of the diseased lung.

It is also possible to collect separate samples of air from different lobes or from different segments of the lobe by placing a catheter in appropriate position through a bronchoscope. The respiratory exchange ratio (R.Q.) will indicate the functional activity of the part from which the sample of air has been collected.

B. Efficient gas exchange depends largely upon an even distribution of the inspired air to all the alveolar spaces. An uneven distribution of the inspired air with underventilation of some alveoli and hyperventilation of others, as occurs in emphysema, will lead to inefficient oxygenation of the blood. Evenness of ventilation is tested by asking the subject to inhale oxygen for 7 minutes[12]. If the distribution of the inspired air is satisfactory the N_2 content of the alveolar air after 7 minutes of O_2 inhalation will be less than 2·5 per cent. An alternative method is to use a nitrogen-meter, which is an instrument specially designed for the study of intrapulmonary gas mixing[13] and is essentially an instantaneous nitrogen analyser. The subject takes a deep breath of oxygen and the nitrogen content of the following expirate is recorded continuously as a line. If the distribution of the inspired oxygen has been satisfactory, the nitrogen content of the last part of the expired air will be constant and recorded as a straight line in the recorder. Uneven ventilation will be characterised by an ascending N_2 line throughout the

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expiration, the gradient of which will be proportional to the degree of the mixing defect.

C. Gas is transferred across the alveolar capillary membrane by the process of diffusion. The diffusion capacity for a gas is defined as the quantity of the gas (ml.) diffusing across the alveolar capillary membrane per mm. of Hg pressure gradient per minute. For oxygen (DO_2) at rest it is 15 ml./min./mm. of Hg. Carbon dioxide being highly soluble diffuses 20 times more rapidly than oxygen and thus impairment of diffusion seldom produces CO_2 retention. The principles and methods involved in the determination of DO_2 in a subject are much too complicated to be of any practical help to the clinician. Fortunately, however, impairment of diffusion across the alveolar capillary membrane (A-C block syndrome) produces characteristically arterial unsaturation (particularly during exercise) without any rise in the CO_2 content. Thus patients with A-C block syndrome can be easily differentiated from those in whom the respiratory insufficiency has resulted from hypoventilation.

D. Blood flow through the lungs must be of uniform regional distribution. Under-perfusion of well ventilated alveoli (dead-space effect) and over-perfusion of ill-ventilated alveoli (venous admixture effect) unbalances the ventilation—perfusion ratio and is the 'commonest cause of anoxaemia in clinical medicine'[14]. Pulmonary blood flow has been studied extensively in Western countries by cardiac catheterisation and well established data on normal subjects and in patients are now available. Similar studies done in India[15] show that the estimate of pulmonary blood flow in Indians agrees well with that of Western countries.

A detailed dissertation of pulmonary blood flow comes under the domain of the cardiac physiology and is beyond the scope of the present discussion.

The short and rather imperfect survey of the lung function tests indicates that it is possible to assess quantitatively the different aspects of pulmonary function with the help of a spirometer and gas analysis apparatus. These tests are intended to supplement the clinical and radiological investigations and cannot be used as a substitute for either.

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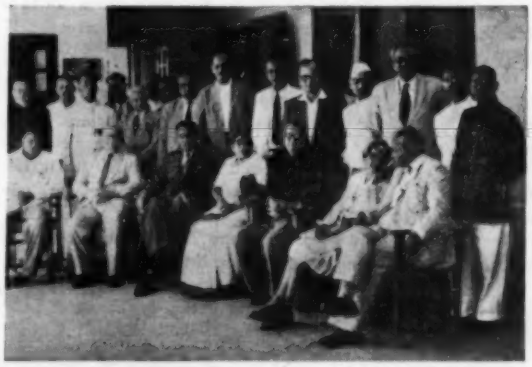
I.M.A. PRESIDENT'S TOUR

Dr. H. N. Shivapuri, President, Indian Medical Association, visited in January last two branches, Calcutta in the first week and Hyderabad in the last week. In Calcutta, he had an informal meeting at the office of the Bengal Provincial Branch of the I.M.A. with some members representing the Bengal Provincial and Calcutta Branches. After some discussion it was finally decided that the XXXVII All-India Medical Conference be held at Calcutta in March 1961.

At Hyderabad, Dr. Shivapuri had a luncheon meeting attended by office-bearers of the Andhra Pradesh State Branch and also by members of the Hyderabad and Secunderabad Branches.



Some Members of the I.M.A. who Attended the Lunch

A Group of the Pradesh, Hyderabad and Secunderabad Branch Members

Dr. S. C. Sen of Delhi, a past president of the I.M.A., was also present in the meeting. Dr. Shivapuri and Dr. Sen appealed to the members to collect funds for the I.M.A. Building.

GENERAL PRACTICE DIGEST

CLINICAL USE OF ANTIMICROBIAL AGENTS

Countless lives have been saved by the judicious use of new and effective antimicrobial agents which have controlled or virtually eradicated some of the infectious diseases. This paper summarises our present knowledge by outlining the clinical application of the antimicrobial drugs which are now available commercially.

Penicillin

This drug is most commonly employed against pneumococcic, gonococcic, streptococcic, meningococcic and syphilitic infections.

Aqueous crystalline penicillin-G is used when rapid effect and high serum concentrations are desirable. It may be given intramuscularly (1 mega unit every 2 hours in meningococcal meningitis) or by continuous intravenous drip (20 to 100 mega units daily in enterococcal endocarditis).

Procaine penicillin-G is used when long-acting effect is desired (in pneumococcic pneumonia it is given intramuscularly once or twice daily in doses of 3 lacs to 1 mega unit).

Benzathine penicillin-G is said to persist in the body up to 4 weeks. It is given intramuscularly in doses of 600,000 to 1,200,000 units for prophylaxis of rheumatic fever or glomerulonephritis, where reinfection by beta-haemolytic streptococci is not desirable.

For patients who are allergic to penicillin-G, penicillin-O is recommended although the latter does not definitely insure against untoward reactions.

On oral administration, concentrations of penicillin-V in the blood exceed those following similar doses of penicillin-G. 200,000 units of penicillin-V given by mouth four-hourly is satisfactory for treatment of minor infections. In more severe infections doses of 1 mega unit or more should be given four-hourly. (It is likely that in course of time alpha-phenoxyethyl penicillin potassium orally will supplant penicillin-V, as the former preparation provides higher concentrations in the blood).

Amphotericin-B, the new antifungal agent, is not used in the management of actinomycosis, because penicillin produces lasting remissions in 80 to 90 per cent of pelvic, abdominal and cervicofacial forms of the disease, and in 50 per cent of pulmonary actinomycosis. (The tetracyclines are likely to be even more effective than penicillin).

Patients with a known heart murmur should not undergo oral, colonic, rectal or transurethral operative procedures without preoperative administration of penicillin. Four mega units of penicillin-V by mouth in four divided doses, beginning 24 hours before operation is as effective as other forms of penicillin. Given at the time of a streptococcal infection, oral penicillin is likely to prevent initial or recurrent rheumatic fever and glomerulonephritis. But for definitive treatment of such infection preference is given to penicillin in forms other than benzathine penicillin-G, and treatment should be continued for at least ten days.

In the treatment of infections of closed membranous cavities due to penicillin-sensitive organisms, aspiration is followed by instillation of 10,000 to 20,000 units of penicillin in 5 to 10 c.c. of physiological saline solution, in addition to penicillin administered systematically.

With the administration of penicillin, the salvage of a limb is often possible when penicillin-sensitive organisms are present in infected ischaemic lesion.

Pasteurella multocida may produce cellulitis, osteomyelitis, bacteraemia, meningitis, and pneumonitis in man. Penicillin is the drug of choice in such infections. (*P. multocida* is also susceptible to tetracycline).

Probenecid (benemid) may increase the penicillin concentration in the blood, but it may cause gastrointestinal irritation.

Untoward reactions—A history of adverse reactions to penicillin in the past, and/or the presence of other manifestations of allergy, such as asthma, may be very important factors requiring consideration. Desensitisation and administration of anti-histaminics are helpful in this respect. Penicillinase is also used for this purpose, but it may also cause allergic reactions. In anaphylatic reactions to penicillin, adrenaline should be administered immediately. Corticosteroids are also useful in such cases, but the presence of infection makes its use hazardous.

Streptomycin

This drug may damage the vestibular function of the eighth cranial nerve. Early detection of such damage may be made by audiometric and vestibular turning tests done periodically during the 6 months after cessation of treatment. With normal renal function, ototoxic effects are unlikely if no more than 2 g. of streptomycin is given daily for no longer than 14 days, or 1 g. may be administered daily for as long as 4 weeks. Mild albuminuria may occur; but azotaemia is rare. In patients with inadequate renal function, azotaemia may be increased on administration of streptomycin and ototoxicity may appear early.

In rare instances, the drug has precipitated acute gout with hyperuricaemia. Paraesthesia is common, but skin eruptions are not frequent.

Bacteraemia due to strains of streptococci other than *Str. pyogenes* is best treated with combined streptomycin-penicillin therapy. Subacute bacterial endocarditis caused by *Str. viridans* should be treated with a 2-week course of procaine penicillin-G in 1 mega unit doses along with streptomycin in 1 g. doses—both injected intramuscularly 12-hourly. This treatment is also followed in cases of bacteraemia due to *Str. viridans* and continued until the patient is afebrile for 72 hours and 3 consecutive blood cultures are negative for the organism.

In infections due to *Str. faecalis*, aqueous crystalline penicillin-G is given by continuous intravenous drip and streptomycin is injected intramuscularly in doses of 0·5 g. every 12 hours. An isotonic solution of sodium chloride or 5 per cent dextrose in distilled water is used as the vehicle for penicillin, and a small amount of heparin (25 to 50 mg.) is added to the infusion. The rate of flow of the drip is so regulated that 1 litre of the fluid con-

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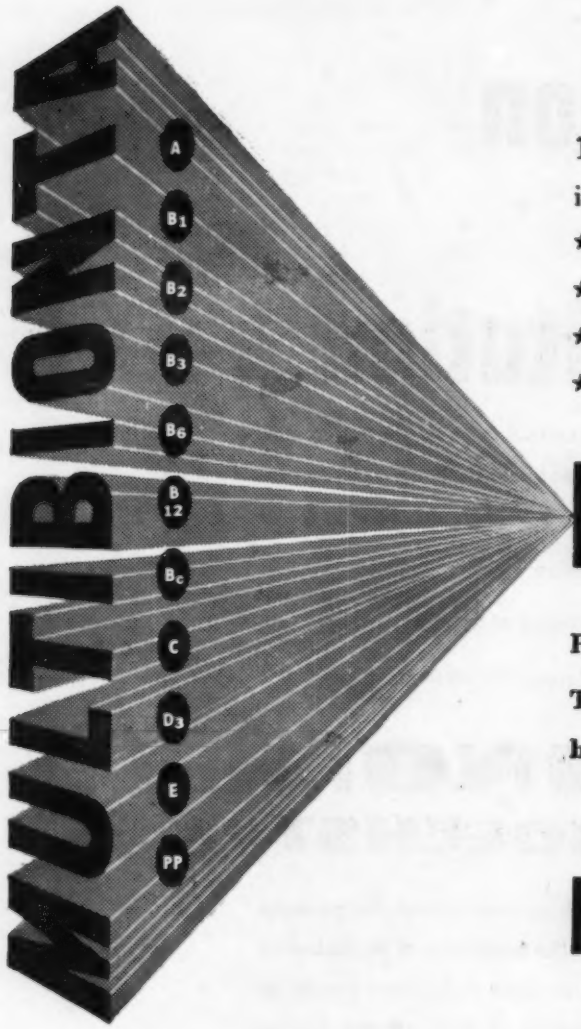

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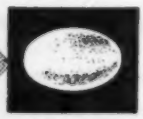

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tains half the daily dose of penicillin and is delivered within 12 hours. The daily dose of penicillin varies from 20 to 100 mega units. This regimen is continued for 4 to 6 weeks in cases of endocarditis and of bacteraemia due to *Str. viridans*.

Streptomycin-tetracycline therapy is the treatment of choice in brucellosis. It is also useful in infections by coli-aerogenes and proteus organisms. Use of streptomycin with other antituberculous agents is the routine choice in the treatment of tuberculosis. Streptomycin alone is also useful in tularaemia.

Bacitracin

This drug is useful against gram-positive organisms including most strains of *St. aureus*. In combination with chloramphenicol, it is given in serious staphylococcal infections. Untoward reactions following its intramuscular injection include pain at the site of infection and nephrotoxicity (albuminuria, glycosuria and azotaemia). Allergic reactions have also been reported.

Its systemic use is justifiable only when it is found active against organisms which are resistant to safer antibiotics. A dose of 10,000 to 20,000 units should be given intramuscularly 6-hourly, and renal function should be carefully observed.

Given by mouth it is not well absorbed, hence it is used as an intestinal antiseptic.

Polymyxin-B

Its parenteral use is followed by nephrotoxicity, acroparaesthesia, cerebellar ataxia, pain at the site of infection, fever, flushing, pruritus and generalised weakness. These disturbances disappear after its use has been discontinued.

Polymyxin-B is reserved for infections not responding to other agents. It is active against strains of coli-aerogenes, shigella and salmonella groups. It is used mainly in serious infections, e.g., bacteraemia caused by pseudomonas organisms.

It is administered intramuscularly in doses of 25 to 50 mg. every 6 to 8 hours. (Blood urea should be noted during its use). Intrathecally, it is used in doses of 1 mg. In salmonella enteritis or shigellosis, a combination of polymyxin-B and neomycin has been given orally —as neither agent is absorbed well by this route.

Neomycin

It is active against staphylococci as well as coli-aerogenes organisms. It is nephrotoxic when given parenterally. It can also produce skin reactions and neurotoxic effects (acroparaesthesia and eighth nerve damage). It should not be given orally in more than 4 g. per day, especially to patients with hepatic or renal disease. It is given systemically only when safer antibiotics do not suffice. A total daily dose of not more than 1 g. can be given in four separate intramuscular injections. Intrathecally 2 g. has been given without ill effects. Neomycin causes paraesthesia, usually circumoral and of the acral parts.

Tetracycline

This antibiotic has largely supplanted the use of oxytetracycline and chlortetracycline. Its oral administration may be followed by nausea, vomiting and looseness of stools. The first two complications can be prevented if the drug is given with cold, pasteurised milk, If this is not possible for any reason, it is best to add calcium carbonate, 5 gr., per capsule of the antibiotic.

In combination with streptomycin, it is given in serious infections due to gram-negative bacilli of enteric origin (coli-aerogenes and proteus organisms). In acute brucellosis, 500 to 750 mg. of tetracycline is given by mouth 6-hourly and 1 g. of streptomycin intramuscularly, twice daily for 2 weeks. In chronic, localised brucellosis the treatment should be continued for 4 weeks, and only 1 g. of streptomycin is given daily with tetracycline.

Tetracycline is given alone in actinomycosis, psittacosis, rickettsial diseases, venereal diseases like lymphopathia venereum, granuloma inguinale (donovanosis) and chancroid, mild infections of the urinary tract, etc., postoperative infections, when caused by susceptible gram-negative bacilli of enteric origin.

It is given orally in doses of 500 to 750 mg. every 6 hours. In serious infections or where the drug cannot be given by mouth, 100 to 200 mg. of tetracycline is injected intramuscularly every 6 to 8 hours, or 500 to 1000 mg. intravenously every 6 to 12 hours. (As chemical phlebitis frequently follows its intravenous administration, the use of leg veins should be avoided). Large doses of tetracycline given for prolonged periods may be hepatotoxic.

Chloramphenicol

It is the drug of choice in the treatment of typhoid fever. As it may produce depression of bone marrow, chloramphenicol should not be used indiscriminately. The recommended oral dose is 500 mg. every 4 hours. The acid succinate of chloramphenicol can be given in doses of 250 to 500 mg. intramuscularly and 500 to 1000 mg. intravenously, every 6 to 12 hours.

In severe infections due to gram-negative bacteria, not responding to teratracycline-streptomycin therapy, chloramphenicol may be given with kanamycin. But this combination should not be used routinely because of great potential toxicity.

Erythromycin

This drug has been used chiefly as an antistaphylococcal agent. It is also used in patients who are allergic to penicillin, but have nonendocardial infections susceptible to erythromycin. Serious allergic reactions must be very rare indeed. It is given orally in doses of 250 mg. 6-hourly.

Other Antibiotics

Other preparations available are novobiocin (in doses of 250 to 500 mg. every 6 to 8 hours), ristocetin (in doses of 2 to 6 g. in 2 to 3 equal parts every 8 to 12 hours intravenously), triacetyloleandomycin (in doses of 500 mg. every 6 hours orally), amphotericin-B (in doses

of 0·25 mg. to 1 g./kg. body weight daily intravenously), vancomycin (in doses of 1 g., 12 hourly intravenously for 3 weeks), kanamycin (in doses of 0·5 to 1 g. every 6 to 8 hours intramuscularly for not more than 14 days), nitrofurantoin (in doses of 100 mg. 6-hourly by mouth), furaltadone (in doses of 250 mg. 6-hourly orally).

STAPHYLOCOCCAL INFECTIONS

Penicillin is the drug of choice in this infection if the organisms are susceptible to it. When, however, the organism is found resistant to penicillin, erythromycin is used. When the organism is also resistant to erythromycin, triacetyloleandomycin or novobiocin may be useful. If the organism is resistant to the above four antibiotics, chloramphenicol may be tried with caution in nonendocardial staphylococcic infections. Ristocetin and kanamycin should be reserved for serious infections (endocarditis). The use of bacitracin and neomycin is limited because of their toxicity. Tetracyline is generally avoided in infections due to resistant strains of staphylococci. Streptomycin and polymyxin-B are not considered in the treatment of staphylococcal infections. Nitrofurantoin and sulphonamides are not used in these infections.

—From an article by W. J. Martin, *Proc. Staff Meet. Mayo Clin.*, **35** : 593, 1960.

CURRENT MEDICAL LITERATURE

Iatrogenic Jaundice

SCHAFFNER, F. (*J.A.M.A.*, **174** : 1690, 1960) from the Departments of Medicine and Pathology, the Mount Sinai Hospital, New York, writes :

Jaundice induced by drugs may be the result of hepatocellular damage, cholestasis, or haemolysis. Cholestasis results from changes in the small bile canaliculi while hepatocellular damage is due to cytoplasmic alterations. Cholestatic jaundice is frequent but usually mild, while hepatitis-like reactions are uncommon but have a high mortality. Jaundice after haemolysis is usually also mild. When drugs are given which have been known to produce jaundice, especially as a result of hepatocellular damage, careful clinical follow-up and periodic determinations of serum alkaline phosphatase and transaminase activities are necessary. The incidence of jaundice will be minimised mainly by the development and substitution of other drugs producing fewer, if any, such reactions even if some therapeutic efficacy is sacrificed. The hopeful aspect is that modern structural and functional methods may permit better understanding of the problems of drug jaundice and possibly predict reactions in the preclinical evaluation of drugs.

Guanethidine in the Treatment of Severe Arterial Hypertension

ARNOLD, O. H. AND KAISER, K. (*German M. Monthly*, **5** : 366, 1960) from the Medical Clinic of the Municipal Hospital, Essen, and the First Medical Division of the Dusseldorf Medical Academy, from the results obtained in 30 hypertensive patients treated with guanethidine, observe :

This drug proved superior in the following ways to the ganglion blockers, hitherto the only drugs that could be used for the treatment of severe forms of hypertension : 1. Longer duration of action ; 2. absence of side-effects due to parasympathicolysis ; 3. more potent effect on diastolic blood pressure ; 4. more rapid closing of the gap between blood pressure in the standing and in the lying position.

Complications that may arise are caused almost exclusively by excessive peripheral sympathicolysis which more or less parallels the hypotensive effect. Because of these difficulties, the use of guanethidine is restricted to severe forms of hypertension ; it appears to be particularly suitable for the treatment of malignant hypertension in fair young patients.

Studies on Anti-hypertensive Effect of Guanethidine

LICHTLEN, P., SCHAUB, F. AND BUHLMANN, A. (*German M. Monthly*, **5** : 371, 1960) from the University Medical Clinic, Zurich, Switzerland, give in the following lines the summary of their observations on the clinical and experimental studies on the effect of guanethidine in hyptertensive cases :

Administered orally (in average daily doses of 80 mg.) to 24 hypertensives, guanethidine produced an appreciable reduction in blood pressure, the systolic levels falling by 26 per cent and the diastolic by 30 per cent ; the diastolic blood pressure dropped below 90 mm. of Hg. in all patients. The effect of the drug set in after 3-5 days. Daily fluctuations were relatively slight, but postural hypotension occurred in 11 patients, especially in the morning ; 9 patients complained of diarrhoea. A rise in non-protein nitrogen may occur in hypertensives with renal insufficiency.

In 23 subjects the intravenous administration of guanethidine led within 2-5 minutes to an appreciable fall in blood pressure which was substantially more pronounced in the standing position than when the patient was sitting or lying. Hypertensives showed a more marked reduction in pressure.

In cardiac catheterisation studies an appreciable decrease in peripheral resistance—the cardiac output remaining more or less constant—was observed in hypertensive patients tilted at an angle of approx. 45° ; when the patients were brought back to the horizontal position, the blood pressure promptly returned to normal while the cardiac output rose. Pressure and resistance in the pulmonary circulation did not show any change.

As a rule, the results of the cold-pressor test were slightly attenuated in both normal and hypertensive subjects following the intravenous administration of guanethidine. The effect of noradrenaline and hypertensin was unchanged following the intravenous administration of guanethidine ; it was not possible to demonstrate a direct potentiation of the pressor reaction, as found in animal experiments. Simultaneous administration of guanethidine intravenously and hydrochlorothiazide, compared with guanethidine alone, did not markedly enhance the fall in blood pressure in the acute test ; the

hypotensive reaction, however, was appreciably lengthened.

Judging from our haemodynamic studies, the sympathetic inhibitor guanethidine behaves similarly to a ganglion-blocker as regards its circulatory effect. Guanethidine, however, has a more pronounced hypotensive effect and is at the same time considerably better tolerated (absence of parasympathicolytic side-effects). Consequently, guanethidine is capable of largely replacing the ganglion blockers in the treatment of malignant and progressive essential hypertension.

Effect of Guanethidine on Renal Haemodynamics

MERTZ, D. P. (*German M. Monthly*, **5** : 378, 1960) from the University Medical Policlinic, Freiburg, writes :

The acute and protracted effect of guanethidine [2-(octahydro-1-azocinyl)-ethyl-guanidine-sulphate] on renal haemodynamics and water and electrolyte metabolism was studied in a total of 15 adults who had no disorders of water and electrolyte balance or of renal, cardiac, or circulatory function. Immediately following intravenous administration of 20 mg. guanethidine, urinary flow (P—0·01), inulin clearance (P—0·01), and PAH clearance (P—0·001) decreased in comparison with the values recorded prior to the test. These changes were connected with renal vasoconstriction (primarily in the afferent arterioles). At the same time, renal excretion of sodium (P—0·001), potassium (P—0·01), and calcium (P—0·01) decreased owing to the reduction in glomerular filtrate and increased tubular reabsorption. The serum concentrations of these electrolytes, the physiologically active fraction of the extracellular fluid, and the mean arterial blood pressure did not change during this period.

Following daily oral administration of 10 mg. guanethidine for 5-7 days PAH clearance increased appreciably (P—0·02). Total vascular resistance in the kidneys decreased by about 10 per cent. Inulin clearance, renal electrolyte excretion, blood pressure, and the physiologically active fraction of the extracellular fluid showed no change in comparison with control values. The question of the extent to which sympathetic innervation of the kidney normally influences renal vasoconstrictor tone is discussed.

Comparative Study of Prothrombinopenic Anticoagulant Drugs

SMITH, R., RODMAN, T. AND PASTOR, B. H. (*J.A.M.A.*, **174** : 1917, 1960) from the Medical Service and the Medical Research Laboratories, Veterans Administration Hospital, Philadelphia, write :

Previous studies in this laboratory had shown little difference among 4 commonly used anticoagulants, bishydroxycoumarin, coumadin sodium, phenindione, and diphenadione. Two newer agents, anisindione and acenocoumarol, for which distinct superiority has been claimed, were compared under controlled conditions with two of the earlier drugs, bishydroxycoumarin and diphenadione, in 230 patients. No clinically significant differences that would recommend one agent over the other were observed. Using a large initial loading dose the majority of the patients could be brought into the therapeutic range at 40 hours and maintained at therapeutic levels approximately 85 per cent of the time with any of the drugs. The authors feel that any of the available prothrombinopenic agents, properly handled, is satisfactory for routine use in anticoagulant therapy, and that physicians should be slow to abandon one with which they are experienced.

Treatment of Thromboembolic Diseases

WRIGHT, I. S. (*J.A.M.A.*, **174** : 1921, 1960) from the Department of Medicine, Cornell University Medical College, writes :

Long-term anticoagulant therapy is being widely used for the control and prevention of recurrent thromboembolic conditions and in an attempt to prevent worsening of intermittent ischaemia affecting the heart (angina) and the brain. Cessation of long-term anticoagulant therapy is frequently followed by additional occlusive episodes. It is suggested that these are due to progression of the atherosclerotic state with increased narrowing of one or more arteries, rendering them susceptible to easy thrombosis when the inhibition of anticoagulation is removed. The apparent lessening in the value of long-term anticoagulation is due in part to the accumulation of marginal patients in the treated series. These die earlier in the untreated series. Thus, the treated series develops a "built-in" adverse bias. After one or more years these marginal patients show evidence of progression of their atherosclerosis and begin to die of vascular occlusion with or without thrombosis, heart failure, and other complications. The evidence for the use of anticoagulants in the treatment of intermittent cerebral ischaemic attacks appears valid. Their use for completed strokes is still being evaluated. Some workers have had favourable results, while others have not. Reasons for the varying results in different series of patients used to evaluate anticoagulant therapy have been reviewed. Criteria for the planning of such studies, for writing the reports, and for intelligently evaluating the results have been suggested.

Factors Influencing Morbidity and Mortality in Older Aged Patient

SHIELDS, T. W. (*Surg. Gynec. & Obst.* **111** : 598, 1960) from the Department of Surgery, Northwestern University Medical School, Chicago, from a review of a series of 126 patients 55 years of age and older who underwent pulmonary operations observes that there were 9 deaths, 7·1 per cent, within the 30 day post-operative period. Cardiovascular and respiratory problems accounted for 8 of the deaths and also produced the majority of the nonfatal complications. Respiratory insufficiency and ineffectual cough with retained secretions were major causes of respiratory difficulties. The use of tracheostomy in many such patients was valuable. Development of a cardiac arrhythmia was a common post-operative complication, especially in the older patient undergoing pneumonectomy, although it was seen after lesser procedures as well. Treatment with either quinidine sulphate or digitalis has been employed successfully when this complication has occurred. Prophylactic therapy with either drug is not routinely recommended.

CURRENT TOPIC

MEDICAL COUNCIL OF INDIA

The following is from the presidential address delivered by Dr. C. S. Patel at the Fifty-fourth Session of the Council on 5th November, 1960 :

A new chapter in the history of the Medical Council of India began with the reconstitution of the Medical Council in February, 1960, under the Indian Medical Council Act, 1956. The number of medical colleges and post-graduate medical institutions have been increasing of late at a rapid rate in the country and the Indian Medical Council Act, 1956 which supersedes the Act of 1933 has saddled the Council with additional responsibilities. I do hope that in according recognition to these new institutions, the Council will keep in view its own great ideal and will not be swayed by consideration of quantity over quality or by any other extra academic consideration. In view of the general complaint of decline in standards in all departments of higher education in the country, it is incumbent on the Council to be cautious and extra vigilant, lest the high standard of medical education so far maintained in the medical colleges should fall.

Problem of Standards

It would not be out of place to examine the reasons for this general complaint and the factors leading to it. I for one, am convinced that the malady has resulted from the type of students that are coming up for the Medical Course. No one can deny that the student turned out by the present Higher Secondary Course or the Pre-University Course is a very poor specimen as far as his basic knowledge is concerned. Having had his education in a regional language, he finds it very difficult to grasp the high standards of scientific learning which is taught to him in the medical colleges in English. The solution of this is definitely not "teaching him in his mother tongue at the medical colleges." That would indeed be fraught with grave danger for at present we have neither the personnel qualified to teach in the regional languages nor the necessary books. We have to proceed with caution. Teachers have to be trained to teach in the regional languages. Books have to be written or translated. A good medical vocabulary in the regional language has to be evolved. All this will take some time. As and when these minimum requirements are met, we could think in terms of changing the medium of instruction. If an immediate change is made, as far as the Council is concerned, we will have to think in terms of appointing a translator to go along with our inspectors at the time of inspection. I would suggest that for improving the standards of medical education and reducing the high percentage of failures, it is necessary that selection to medical colleges should be based on merit and that the students thus selected should be given a good grounding in the pre-medical science subjects and special attention should be paid to teach them sufficient English to enable them to follow the medical lectures, terminology and books without difficulty. The pre-medical syllabus should be revised to give a medical bias to the subjects and the course may preferably be conducted at the medical college itself. Regarding the medical course itself, the Undergraduate Curriculum Revision Committte appointed by this Council is entrusted at present with the task of making necessary alterations or additions and their recommendations will be considered and placed before you in due course. Statements like doing away with the detais in the Basic Sciences taught will serve no purpose. Already the preclinical course has been reduced from two years to 18 months, and more stress is being laid on teaching applied anatomy, physiology and preventive aspects of medicine. With improved facilities for teaching and more qualified staff who will be able to give more personal attention to the students at seminars and tutorials, the standard is bound to go up and the failures reduced. While we cannot at present avoid examinations, more attention can be given to the day to day work of the students and credit given for this when assessing their performances at the university examinations. It is also vitally necessary that to achieve uniform standard in any university, the same set of examiners should conduct the examinations in the various colleges affiliated to the University at any one time. I would request the representatives of the universities on this Council to take particular care in this matter. I would stress once again on better selection of students, adequate facilities for teaching and more qualified teachers.

Licentiate Courses

While the Council is making every effort to see that the standard of medical education is raised and a uniform minimum standard is at least achieved, I am sorry to find that attempts are being made in some quarters to revive the licentiate course. This is a most retrograde move and should be opposed. No one can produce mass doctors. When there is a clamour for equality in the status of doctors, it is wrong to think in terms of two types of doctors and to create a caste system. If the idea is that these licentiates will go and settle in the villages, then the facts of the last so many decades, falsify the hopes. I shall briefly trace here the various steps which this Council has taken during the last several years to help in increasing the number of doctors in the country and to bring about a uniform standard.

In 1937-38, there were 23 medical schools in India (refers to area comprising India after partition) catering for the various licentiate courses and the total number of students (both boys and girls) undergoing training in licentiate courses was 15,482.

In order to have a uniform standard of medical education in the country and to have an All-India Medical Register, the Medical Council of India adopted the following resolution at its meeting held on 26th October, 1940 :

"1. (a) Provision should be made for the maintenance of an All India Medical Register by the Medical Council of India.

(b) This Register should include the following two groups :

(i) All persons who hold qualifications borne on the Schedules to the Indian Medical Council Act, 1933.

(ii) All persons who are practising the Modern Scientific System of Medicine in British India on the date the Register comes into force and possess qualifications granted on or before 31st December, 1947, by examining bodies in British India (other than the Universities) and whose names are on the Registers maintained by the Provincial Medical Councils on that date.

2. The Executive Committee recommends to the Council to move the Central Government to take early steps to implement the above proposals and also to ask the Provincial Governments to abolish the Medical Schools for Licentiates or raise them to the University Standard in their respective Provinces so that there would in future be only one uniform minimum standard of medical qualification for the whole of British India."

The above resolution was forwarded to the Central Government and later on to the Provincial Medical Councils for necessary action. The authorities concerned accepted the proposal of the Council and as a result of this, 17 medical schools were upgraded to medical colleges and 5 were closed down. Thus, there is only one medical school at Ludhiana which is still functioning.

The Council adopted in August 1937 recommendations with regard to concessions to the licentiates for doing the condensed M.B.B.S. Course and circulated the same to the authorities concerned. A large number of licentiate doctors have taken advantage of this concession of the Council which is allowed up to 1961 and may be extended if considered necessary.

As already stated, this Council is interested in having a uniform standard of medical education and for this purpose would like to increase the number of medical graduates to meet the shortage of medical personnel in the country. In this connection, the Council passed the following resolution at its meeting held on 14th/15th November, 1952 :

"1. (a) Where suitable arrangements would be made by the Universities double shift system in instruction to medical students may be introduced as an immediate measure to relieve the deficiency in the medical personnel in the country;

(b) The Executive Committee did not consider it necessary at present to make any inspection for this purpose.

2. The Executive Committee further recommends that Medical Colleges might be permitted to admit each year additional number of students not exceeding 25 per cent over and above the number approved by the Council for each institution.

3. The number of admission as arranged above may be allowed for five years."

The Executive Committee *vide* their resolution in May, 1959 advocated increasing the number of medical colleges, particularly in areas where there were fewer medical colleges and expanding the existing medical colleges so as to admit 25 per cent to 30 per cent additional students (total admission up to 150) wherever there was scope for it; the admission was however to be limited to 100 in new medical colleges.

The facts are that there is little enthusiasm for the revival of the licentiate course even among the licentiates. Further the desirability of maintaining university standard is evident from the resolution of the Working Committee of the Indian Medical Association passed at its meeting held on 19th August, 1960. The resolution says :

"The Working Committee views with alarm the proposal of the Planning Commission to revive the Licentiate Course in medicine to meet the apparent shortage of doctors. It has been definitely accepted by Government that there should be only one standard medical qualification and that is the University Degree. The Licentiate Course has been dropped for over several years now and facilities have even been offered to Licentiates to qualify for the Degree. The Working Committee strongly opposes the recommendation of the Planning Commission and requests that the proposal be dropped once for all.

However, the Planning Commission's approach to overcome the unwilliness of medical men to settle down in villages by recommending improved emoluments, provision of residence and educational facilities to their children is the right and proper approach and the Working Committee feels confident that the above will meet to an extent the present needs of the country with regard to rural medical relief."

I am sure this Council will unanimously reject this revival plea.

Visitations and Inspections

The Government of India have issued the necessary notification recognising and including the M.B.B.S. degree granted by the University of Vikram in the First Schedule to the Indian Medical Council Act, 1956. Five yearly periodical undergraduate inspections during 1959 were carried out at the following universities and the inspection reports have been forwarded to the universities concerned for their observations :

1. Andhra University, 2. Calcutta University, 3. Baroda University, 4. Gujarat University, 5. Madras University.

I have reported time and again the inordinate delay on the part of the universities and the licensing bodies in forwarding their observations. I would once again emphasise on the representatives of the various universities on this Council to persuade the authorities of their respective universities to expedite their observations as such inordinate delay on their part will adversely affect the standard of medical education.

Inspection by the Council Visitors were also carried out at the following colleges and necessary action taken

in each case as decided by the Executive Committee from time to time :

1. Medical College, Nagpur in respect of additional facilities provided there for extra students of the Government Medical College, Aurangabad, admitted there.
2. The Government Medical College, Aurangabad, affiliated to Marathwada University.
3. The Kakinada Medical College, affiliated to Andhra University.
4. The Medical College, Calicut, affiliated to Kerala University.
5. The Gandhi Medical College, Hyderabad, affiliated to the Osmania University.
6. The Medical College, Guntur, affiliated to Andhra University.
7. The Christian Medical College, Ludhiana, affiliated to the Punjab University.
8. The Karnatak Medical College, Hubli, affiliated to Karnatak University.

During this year, periodical inspections of the following universities were carried out :

1. Agra University, 2. Bombay University, 3. Lucknow University, 4. Nagpur University, 5. Mysore University.

Besides, inspections of Vikram University in respect of students of Gandhi Medical College, Bhopal, Lucknow University in respect of students of G. S. V. M. Medical College, Kanpur, and Madras University in respect of students of Madurai Medical College, Madurai, were also carried out for approval of these colleges as these had reached the final stage of the M.B.B.S. course of the university concerned. Re-inspection of Kerala University for recognition of its M.B.B.S. degree by the General Medical Council of the United Kingdom, as decided by the Executive Committee, was also carried out. The inspection reports in respect of above inspections are being received from the Inspectors and will be forwarded to the universities concerned for their observations in due course.

Besides, inspections of the standard of M.B.B.S. examination and the facilities for teaching available at the affiliated colleges have been arranged for Sri Venkateswara University, Jabalpur University and Mysore University in respect of Bangalore Medical College, Bangalore.

The visitation of Kurnool Medical College, Kurnool, affiliated to Sri Venkateswara University was carried out in respect of extra admission of students and necessary action in the matter has been taken by the Executive Committee.

The Central Government have since my last address issued necessary notification recognising various postgraduate medical qualifications granted by the Universities of Vikram, Agra and Lucknow and the same is being placed before you for your information. In this connection, I may however bring to your notice that for sometime past we have been recommending to the Central Government recognition of qualifications indicating the names of medical colleges where the students are actually being trained. While the Central Government have issued necessary notifications recognising the postgraduate qualifications of the above three universities, the question of recognition of the following post-graduate qualifications of the universities as indicated against each is still under the consideration of the Central Government perhaps because of the fact that there is no provision in the Act, as at present, for inclusion of names of medical colleges into the Schedules to the Act and I presume that it is on this account that recognition of these qualifications is being held up for further consideration :

M.D. Pathology including Bacteriology)	Andhra University
M.D. (Medicine)	
M.D. (Obstetrics & Gynaecology)	
D.O.	
D.G.O.	
M.S. (E.N.T.)	
M.D. (Medicine)	Bombay University
M.D. (Midwifery)	
M.S. (Surgery)	
M.D. (Oto-Rhino-Laryngology)	
D.O.	
M.D. (Tuberculosis)	
M.D. (Pathology)	Panjab University
M.D. (Medicine) with special subject	
M.D. (Physiology)	
M.S. (Anatomy)	
M.S. (Surgery)	
M.S. (Ophthalmology)	
D.O.M.S.	
D.T.D.	
D.L.O.	Baroda University
M.D. (Pathology)	
M.D. (Medicine & Therapeutics)	Gujarat University
M.D. (Obstetrics & Gynaecology)	
M.S. (Surgery)	

The recommendation of the Executive Committee in respect of recognition of the following postgraduate qualifications are being placed before you for your consideration.

D.C.H.	Agra University
M.S. (Pharm. & Thera.) ...	Andhra University
M.D. (Bact. including Path.) ...	—do—
D.A.	Baroda University
M.Sc. (Pathology)	Bombay University
M.D. (Obsts. & Gyn.) ...	Panjab University
M.D. (Pharmacology) ...	—do—
M.S. (Anaesthesia)	

The inspections of the various postgraduate qualifications granted by the following universities have been arranged during the current year :

Agra University	D.M.R.E.
Nagpur University ...	D.O.
	M.Sc. (Anatomy)
	M.Sc. (Physiology)
	M.D. (Medicine)
	M.S. (Surgery)
	M.O.

Andhra University	...	M.S. (Ophthalmology)
Bombay University	...	D.V.D. D.P.M. M.Sc. (Anatomy) M.Sc. (Pharmacology) M.D. (Pediatrics) M.S. (Ophthalmology) D.M.R.E.
Calcutta University	...	D.M.C.W.
Delhi University ...	...	M.Sc. (Anatomy) M.D. (Medicine) M.D. (Obsts. & Gyn.) M.S. (Surgery)
Lucknow University	...	M.S. (Surgery)
(Kanpur Medical College only)		M.S. (Orthopaedics) M.S. (Anatomy) M.S. (Ophthalmology) M.D. (Medicine) M.D. (Physiology) M.D. (Pathology)
Poona University ...	...	Ph.D. (Pathology) D.P.H.
Rajasthan University	...	M.S. (Ophthalmology) M.S. (Obsts. & Gyn.)
Vikram University	...	D.O.M.S.
Baroda University ...	...	M.D. (Obsts. & Gyn.) M.Sc. (Pathology) M.Sc. (Anatomy) D.O.
Bihar University ...	...	M.D. (Physiology) M.D. (Pharmacology)
Panjab University	...	D.A.

The Inspection Reports as and when received from the Inspectors are being sent to the Universities for their observations on receipt of which the matter will be considered by the Executive Committee and put up to you with their recommendations in due course.

The task of inspections of the medical colleges has assumed tremendous proportions in view of the fact that more and more medical colleges are springing up, on an average at the rate of 3 medical colleges a year. Arranging the dates for inspections at the various medical colleges during examinations has become an arduous task in as much as all the examinations in the country are held in or about the months of April and December. During the last examination session 110 Inspectors were appointed to inspect undergraduate qualifications of 13 universities and 61 Inspectors for 30 postgraduate qualifications of 12 universities. In most cases examination dates are the same or near about the same and Inspectors are busy with the examination of their own and other universities; hence great difficulty is experienced in arranging inspections. Usually intimation about the dates of the examinations come to us very late from the universities with the result that the Inspectors nominated are often unable to adjust their programme, and to get substitutes at the eleventh hour becomes very difficult. As more and more medical colleges come into being, this problem will become more difficult.

Permanent Inspectors

For some time past the Council has been thinking in terms of appointing a few permanent Inspectors, who would visit various institutions throughout the year and report on the nature of the existing facilities and the progress made and also make their recommendations to improve the standards. These inspectors will be in addition to the regular inspectors appointed at the time of examinations, who will then mainly be concerned with the standard of the examinations. The Executive Committee have considered this matter very carefully and their recommendations are being placed before you.

Powers to Inspect Medical Colleges

I would here like to invite your attention to a serious situation that has arisen as a result of a circular issued by the D.G.H.S. to the Principals/Deans of all the colleges and universities, and Directors of Health Services regarding the powers of the Inspectors appointed by the Council, wherein it has been stated that Section 17 of the Indian Medical Council Act, 1956, "should not be construed to mean as conferring a right of inspection of the Colleges as such". This circular, to say the least, took us by surprise. During the last 25 years the Indian Medical Council have reported not only as to the sufficiency of an examination but also the standard of training given to the examinees. A convention has grown and it has a force of law and no difficulty has been experienced by the Inspectors to examine and report on the provisions for training of the students. Recognition of a qualification and its inclusion in the Schedule of the Act cannot be made merely by inspection of examinations.

Your Executive Committee at its meeting held on 31st July, 1960 at Calcutta, felt that such a letter should not have been issued without previous discussions with the Council as such. The D.G.H.S. being a Member of this Council should have kept the interests of the Council in mind and it was up to him to see to it that the prestige which this Council enjoys both in India and abroad should in no way be harmed. The Executive Committee also felt that the Clauses of the Indian Medical Council Act implied such powers of inspection. If however legal opinion was against this view, then it was desirable to amend the Act. It was further decided that a Sub-committee should wait on the Union Health Minister for discussion. Accordingly the Sub-committee consisting of Dr. B. Narayana, Dr. B. B. Bhatia, Dr. G. L. Sharma and Dr. R. V. Sathe and myself met the Minister on 12th September, 1960, and placed our view point before him. The members of the Sub-committee briefly explained their point of view in regard to the circular letter issued by the Director General of Health Services to all Administrative Medical Officers, Directors of Health Services, Principals of Medical Colleges and the Universities. It was argued by the deputationists that the Medical Council of India could not perform its statutory functions if the inspector appointed by it were unable to inspect the institutions where the training is given and also the equipment and other teaching arrangements. It was stated that under Sub-section (2)

of Section 17 of the Indian Medical Council Act, 1956, the inspectors appointed by the Executive Committee of the Medical Council of India were required not to interfere in the conduct of any examination but they were required to report to the Executive Committee of the Council on the sufficiency of every examination which they attended and on any other matter in regard to which the Executive Committee might require them to report; it followed that inspectors could also inspect the medical colleges and the teaching arrangements including equipment therein. They further explained that the inspectors appointed by the General Medical Council of U.K., were inspecting all facilities provided at the teaching institutions in the U.K. although the U.K. Medical Act of 1886 did not specifically make any provision for the inspection of the places where instruction was given to medical students. It was further explained that in the U.K. Medical Act of 1950/1956 specific provision was made for the inspection of the places where instruction is given to the medical students.

The Health Minister promised to look into the matter and explained that legal opinion had been obtained and the advice of the Law Ministry was that specific provision had been made under the Pharmacy Act, 1948, and the Dentists Act, 1948, empowering the inspectors appointed by the Pharmacy Council and the Dental Council of India to report not only on the sufficiency of every examination at which they attend but also on the courses of study and training at every institution which they inspect. As there was no express provision of this kind in the Indian Medical Council Act, 1956, the Ministry of Law were of the view that the inspectors of the Council could not legally insist on the inspection of medical colleges.

The Health Minister also observed that if the Medical Council of India felt any difficulty in the discharge of their functions they should submit proposals for amending the Indian Medical Council Act, 1956, which would be carefully examined by the Central Government. He also said that although the Medical Council of India could not insist under the provisions of the Indian Medical Council Act, 1956, to inspect the colleges, there would, however, be no objection to such an inspection if a particular university or college requested the Medical Council of India to send its inspectors to inspect the college as well as the examination.

Reciprocity

As you are aware, one of the functions of the Council has been the furtherance of the recognition of Indian medical qualifications in the States or countries outside India with its corollary of recognition in this country of approved qualifications of such States or countries. We have been trying to get the General Medical Council to recognise all the qualifications recognised by us with retrospective effect. In a few cases we have succeeded. Under the direction of the Executive Committee, Major K. N. Rao, Director of Medical Services, Andhra Pradesh and a member of the Executive Committee was requested to meet the President of the General Medical Council of United Kingdom. This matter will be pursued further.

The question of recognition of the M.B.B.S. degree granted by the universities of Mysore and Karnatak is still under the consideration of the General Medical Council. In the case of Karnatak University, it has been intimated by the General Medical Council that the matter would be further considered by their Executive Committee on receipt of the information asked for and in the case of Mysore University, they have demanded the recent inspection reports. An inspection of the Medical College, Trivandrum, was also carried out for purposes of recognition by the General Medical Council. These reports will be supplied to the General Medical Council after they have been considered by the Council. Regarding Vikram University also the matter has been taken up with the General Medical Council for recognition and it is under their consideration in respect of the M. G. M. Medical College, Indore and G. R. Medical College, Gwalior. The Inspection Reports of the Guntur Medical College, Andhra University, and the Christian Medical College, Ludhiana and the Government Medical College, Patiala, both affiliated to the Punjab University, have also been forwarded to the General Medical Council for recognition of these colleges.

Under Section 12 (2) of the Act, the Council may enter into negotiations with the authority in any State or country outside India which by the law of such State or country is entrusted with the maintenance of a Register of Medical Practitioners for the settling of a scheme of reciprocity for the recognition of medical qualification. As this Council will have a Medical Register of its own, necessary negotiations with other countries will have to be pursued. Although some countries were prepared to have reciprocity through the General Medical Council, we adhere to accept reciprocity only on direct basis. The Council will further its efforts not only to improve our standards in medical education but also to have fair and honourable schemes of reciprocity with other countries.

We are trying to explore all possible avenues to establish reciprocity for recognition of medical qualifications with other countries and I am glad to inform you that reciprocity in the matter of mutual recognition of medical qualifications between India and the Federal Republic of Germany and India and Pakistan are under our active consideration. We have yet not made any headway in the matter of reciprocity with the U.S.A. However, the basic degree of M.D. of some of the American Universities has been recognised by this Council under Section 13 of the Indian Medical Council Act in the case of Indian Nationals and under Section 14 in the case of foreigners. A Sub-committee consisting of Drs. K. N. Rao, S. S. Misra and Tulsi Das is at present considering the recognition of certain American and Canadian postgraduate qualifications for teaching purposes. Their report will be of utmost importance as a large number of our medical graduates are now going over to the U.S.A. and Canada for higher training.

Indian Medical Register

Under the Act of 1933 the Council had no register of its own. However Section 21 (1) of the Indian Medical Council Act, 1956 provides for the Indian Medical

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† Mou, T.W.: GP. *12*: 103, 1955.

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Register which shall contain the names of all persons who are for the time being enrolled on any State Medical Register and who possess any of the recognised Medical qualification. Each State Medical Council shall supply to the Council three printed copies of the State Medical Register, after the commencement of this Act and subsequently after the first day of April of each year and each Registrar of the State Medical Council shall inform the Council without delay of all additions to and other amendments in the State Medical Register made from time to time. It is of utmost importance that the Registers of the State Medical Councils contain only the names of the living members of the profession. The Council approved the form of the Indian Medical Register Schedule-wise and on this being communicated to the Central Government, they have asked our opinion as to why it cannot be compiled on the General Medical Council pattern without amending the Indian Medical Council Act. The recommendations of the Executive Committee regarding this are being placed before you.

Recognition College-wise

The question in respect of specification of names of medical colleges against the qualifications granted by the universities in India in order to make a distinction between the approved and unapproved medical colleges has been engaging the attention of this Council for sometime past. The Government of India have desired that the question of recognition of medical qualification with reference to colleges at which the students have received training and not with referenc to the universities which grant the qualifications might be placed before the Council after it has been reconstituted and the recommendations forwarded to the Ministry of Health in due course. The matter will come up for your consideration. At present a large number of medical colleges are springing up in India, not all of which come upto the standard in the matter of facilities as recommended by this Council. It is therefore necessary that colleges should be recognised individually and such a procedure will facilitate recognition by the General Medical Council which also recognises degrees only college-wise.

Registration under Section 13 (3) of the Indian Medical Council Act, 1956

Section 13 (3) of the Indian Medical Council Act, 1956, provides for the registration of qualifications included in Part II of the Third Schedule to the Act when held by Indian Nationals provided they have undergone such practical training as may be required by the rules or regulations enforced in the country that grants the qualifications or such practical training as may be prescribed by this Council. A few cases of registration are pending with the State Medical Council for want of details of such practical training as required in the case of holders of these qualifications who have not undergone any practical training in the country awarding the qualifications. The Executive Committee referred the matter to the Registration Sub-committee appointed by the previous Council consisting of Col. Amir Chand and Dr. S. K. Menon. The report of the Registration Sub-committee together with the recommendations of the Executive Committee is being placed before you for consideration.

Rural Medical Relief

The Honourable Prime Minister speaking at the inaugural function of the Silver Jubilee Celebrations of this Council in February, 1959, expressed the desirability on the medical profession serving in the rural areas if not permanently, at least for a specific period, especially in the case of new entrants to this noble profession, which would be a great contribution to the cause of preservation and improvement of health standard of the country as the bulk of the Indian population resides in rural areas. The Prime Minister again on 25th January this year while inaugurating in New Delhi the Joint Annual Conference of the Association of Physicians and Paediatricians, the Cardiological and Neurological Societies and the Indian Association of Chest Diseases called for steps to afford free medical service to the community. He said that young men and women who graduated in medicine or completed their studies in special fields owe a duty to the Society which made it possible for them to acquire specialised knowledge. There should be an absolute rule that every person in the medical profession should put in a year or more in areas which were not properly served. In order to give practical shape to this suggestion of the Prime Minister, the Executive Committee on my suggestion adopted the following resolution at its meeting in March, 1959:

> "The Council resolves to recommend to the Central and State Governments that while selecting the candidates for admission to medical colleges, they will introduce a system of undertaking from the students that they shall serve for a period of three years as directed by the Government in rural areas or otherwise on a scale of remuneration commensurate with their qualification."

As directed, the above resolution was circulated to all colleges, universities and State Governments for eliciting their views in the matter. The replies received, have been tabulated and forwarded to the Executive Committee and as directed further action has been taken.

Medical Man-Power Situation

Information was received from the Planning Commission through the Ministry of Health on 18th April, 1959, regarding the increased number of medical men required in the country during the period of the Third Five Year Plan. In this connection I may state that the annual output of medical graduates in the country is hardly sufficient for its needs. On an assumption of 100 medical graduates annually from each medical college, the total output comes to 5,000. This number is inadequate for the ever-increasing needs of the country. The Health Division of the Planning Commission has estimated that there were 71,600 doctors in India in 1956 of whom nearly 31 per cent were above 51 years in age and that the active doctors that would be avail-

able out of this number in 1966 would be less than 50,000. It has also been estimated that in order to merely maintain the availability of doctors at the level of 1956, about 3,200 doctors per annum would have to be added to the 1956 cohort.

Prior to independence the country had 21 medical colleges (14 fulfledged medical colleges and 7 colleges which were developing) and the number of students annually admitted into these colleges was about 1,200. Between 1947 and 1951, 8 more colleges were established bringing the total number of colleges to 29. During the first Five Year Plan period 13 new medical colleges were added and during the Second Five Year Plan period 16 more colleges have come up so far, thus making a total of 58.

In regard to age distribution 18 per cent of doctors are below 30 years of age, 51 per cent in the age groups 31-50, 18 per cent in the age group 51-60 and 13 per cent over 60 years of age. The graduate doctors constitute the youngest group with 66 per cent below 40 years of age. Assuming that about half the doctors in the age group 61-70 and all above age 71 would have ceased to be active, the number of doctors active from the cohort of 1956, i.e., 71,600 in the subsequent quinquennial periods till 1986 is estimated by the Planning Commission as (without taking into consideration of newly qualified doctors in subsequent years) :

1956	..	..	65,100 (active out of 71,600)
1966	..	..	47,883 ,,
1976	..	..	30,405 ,,
1986	..	..	14,144 ,,

Our records show that the number of admissions to all the medical colleges in 1950 was 2,693 (2,239 regular and 454 condensed M.B.B.S. students) which went up to 4,237 by 1956 (3,876 regular and 361 condensed M.B.B.S. students) and 5,132 in 1959. On this basis the average annual outturn of doctors in the Third Five Year Plan would be about 3,800. The number of doctors that were available in 1956, and would be available in 1961 and 1966 with the existing facilities are calculated as :

Year	*No. of active doctors*	*Estimated population*	*Population per doctor*
1956	65,100	391 million	6,015
1961	56,491 doctors 13,794 qualified during 2nd Plan 70,285	431 million	6,118
1966	47,883 13,794 during 2nd Plan 19,052 during 3rd Plan 80,729	480 million	5,945

Thus it would be seen that the existing facilities would just be able to keep up the number of doctors per million population in 1966 as at the level of 1961. Hence there is absolutely no progress and the position is static because of the enormous growth of population. Round about 1953-55 in U.S.S.R. population per doctor was 600, U.S.A. 760, Italy 800, Japan 1,000, France 1,100, England and Wales 1,200, Egypt 3,500, India 5,700, Burma 8,400, Pakistan 13,000.

By 1971, our population is estimated to be 540 million and we will then require 89,181 doctors if the norm assumed per doctor 5,500 is to be attained. Likewise, by 1981 when the population is estimated to be 691 million we require 1,97,428 doctors if the norm assumed per doctor 3,500 is to be attained.

The existing 58 medical colleges normally provide for 5,800 admissions but at present these are admitting about 5,000 per annum. If all the 58 colleges were expanded to have 150 admissions in each of them the total number of admissions would increase to 8,700 per annum. A few more medical colleges would invariably come up in the Third Plan period. The Health Panel of the Planning Commission is understood to have proposed the opening of more medical colleges in the Third Plan. Opening of even 15 new medical colleges each providing for 100 annual admissions and expanding all the 58 existing medical colleges each to take in 150 admissions annually will give a total of about 4,500 additional annual admissions, from 1966 onwards. These facilities will give by 1971 a total of 1,01,412 doctors for an estimated population of 540 million and the population per doctor will be 5,324.

If during each of the 4th and subsequent Five Year Plans 15 new medical colleges are established and the 18 colleges started during the previous plan period are expanded to take in 150 admissions each and the programme be so phased that every year 3 new colleges are opened and expansion of three colleges started in the earlier plan period achieved, this would give by the end of the 5th and 6th Five Year Plans a total of 1,37,906 and 1,87,564 active doctors respectively. Thus by 1976 the population per doctor will be 4,408 and by 1981, 3,805. These figures show that tremendous efforts are needed to increase the outpnt of doctors to keep pace with the growth of population. More colleges mean more teachers, more hospital facilities, more equipment and more accommodation.

All possible avennes have to be explored to provide facilities for post-graduate training in India. As an immediate measure the desirability of opening a few institutions at different central places for training post-graduates should be taken into consideration by the authorities. Such trainees should be given stipends and Fellowships analogous to those offered by the T.C.M. or W.H.O. or under the Colombo Plan, not for travel alone but for intense study and higher qualification. An important reason that is responsible for not attracting suitable young men and women to take up the teaching profession is perhaps the service conditions and scales of pay fixed for such appointments. The training of teachers should be done in as many institutions as possible. Besides, this will not only improve the undergraduate training but it will also provide larger facilities for the development of specialities in the different branches of study.

Postgraduate Medical Education and Research

The question of post-graduate medical education had been engaging the attention of the Council for sometime past. In 1950 a Post-graduate Medical Education Sub-committee was formed and on receipt of the reports from various universities on the subject, drew up recommendations which were forwarded to the universities for their comments. Accordingly in November, 1952 the Council adopted recommendations on postgraduate medical education in respect of nomenclature of degrees, courses and period of studies, examinations, recognised training institutions and teachers, and forwarded them to the various universities for their information and necessary action. The Council in 1953, formed an Advisory Body namely, Postgraduate Medical Education Committee to advise the Council on matters relating to postgraduate medical education and standard of examinations, teaching and training requirements, inspection of facilities and examination, etc., with powers to co-opt additional members, including specialists not necessarily Council members and also for the formation of subcommittees for consideration of special subjects as and when necessary. Seventeen sub-committees for various specialities were formed to draw up the syllabus, etc., in each subject.

Under Section 20 of the Indian Medical Council Act, 1956, the Council may prescribe standard of post-graduate medical education for the guidance of universities and may advise universities in the matter of securing uniform standard of post-graduate medical education throughout India and for this purpose, the Central Government may constitute from amongst the members of the Council a Post-graduate Medical Education Committee. This Committee shall consist of 9 members all of whom shall be persons possessing post-graduate medical qualifications and experience of teaching or examining post-graduate students of medicine. Six of the members of the postgraduate Committee shall be nominated by the Central Government and the remaining three members shall be elected by the Council from amongst its members. However, your Executive Committee did not consider this as truly democratic and have suggested an amendment to this Section by which 3 members would be nominated by the Central Government and the other 6 will be elected from amongst the members.

I like to lay special emphasis on research in this country. The History of Medicine is the story of great men and great discoveries. The present century has witnessed the discovery of many drugs and techniques that have revolutionised medical practice. The development of old theories and methods have resulted in many remarkable products undreamt of by their originators. It is undeniable that medical science has made very great progress during the half century but great as it is, there remain many fields of inquiry still unexplored, which may be expected to yield rich harvest. Research workers of suitable talent and temperament will be forthcoming from our institutions provided sufficient incentives are created either by the Government or private agencies. Modern methods of research are costly and often prolonged and the Government should accept the responsibility of assisting research which has as its object the prevention of human suffering and which will in due course minimise expenditure towards medical relief to the State.

Silver Jubilee Research Award Fund

As you are aware the Silver Jubilee Research Award Fund was instituted by the Council on the occasion of the Silver Jubilee Celebrations of the Medical Council of India, to give early recognition to the triumphs of medical research in India. It has been the hope of this Council that by spotting and illuminating significant new trends and discoveries by research workers in Indian laboratories, the progress of putting them to use will be hastened. These awards will be national honours. I have already appealed to you to give your utmost co-operation in raising the funds. So far the total collections come to Rs. 2,31,750. Besides Rs. 11,000 has still to be received.

In scientifically advanced countries research is considered to be an integral part of the activities of medical colleges. In fact, in those countries a mediceal college which does not have an active programme of medical research will evoke no respect as an educational centre. All the foreign workers who have visited this country in fairly large numbers since the dawn of independence have also drawn pointed attention to the meagre facilities available for medical research in the medical colleges. Many of the teachers in medical colleges have been abroad and have seen the type of research being carried on in the teaching institutions in those countries. All this has naturally made people, especially the teachers in the various medical colleges think seriously of this problem and it can be recorded with a feeling of some satisfaction that the situation has changed considerably in recent years even though it cannnot be said that the tempo of research in our country can be favourably compared with that seen in scientifically advanced countries of Europe and U.S.A.

Post-graduate medical education is an integral part of research and therefore should be necessarily allied to research work. It is obvious that only a research minded medical teaching staff can inculcate and infuse the spirit of active research in students of post graduate classes. A permanent and ever-expanding cadre of research personnel ought to be established for research work. A long term policy is thus required in the interests of medical education and research instead of what is now being done, when workers are employed only for short periods for research projects. Young teachers in medical colleges are full of enthusiasm and initiative. If the means to train and utilise them and the resources to carry on research are provied, we will have every reason to look at the future with hope and confidence.

Recently there has been a trend in certain universities abroad to utilise the services of non-medical scientists in medical colleges. In our country also there are some who feel that this should be given a trial. I have thought over this often and I am not fully convinced of the absolute utility of this scheme for the present. To my mind, medical students have to be taught all subjects

from "Applied Medicine' point of view. A strong medical bias is necessary so that a true perspective of the subject may be obtained by the student. It is only a medical man who will be able to inculcate this, who will be able to appreciate the actual requirements of the students. Nevertheless I am agreeable to utilise the services of highly qualified and experienced non-medical scientists in medical colleges, especially in the field of medical research. They would probably be good guides for our post-graduate students and of valuable assistance in the field of biochemistry, pharmacology and microbiology. A pilot scheme of this sort spread over a period of ten years may be worth a trial. About 10 per cent of the major 2nd grade teaching and research posts of a medical college could be filled with non-medical scientists, while the heads of departments shall be medical men.

SECTIONAL SEMINARS

As you are aware the sectional seminars in the various specialities were held at the time of the Silver Jubilee Celebrations of the Medical Council of India on the 13th February, 1959, followed by a full seminar on the 14th February, 1959. The Executive Committee at its meeting held on 28th March, 1959, decided that the reports of the conveners be circulated to all the State Governments, universities, medical colleges and specialists associations for eliciting their opinion. The views received from the various bodies have been tabulated and placed before the Sub-Committee and the further recommendations of the Executive Committee shall be placed before you, for further consideration in due course.

The reports would be of immense value to us to guide and develop postgraduate medical education in the country. This will pave the way to evolve a more useful pattern ot medical education in the country.

NOTES AND NEWS

Medicine, A Lifelong Study

The proceedings of the Second World Conference on Medical Education, "Medicine, a Lifelong Study" have become available from the press from the end of January, 1961. This contains an enormous amount of extremely interesting and useful material. Those who have ordered copies at the pre-publication price have already been notified that the book is now available. Orders for copies of "Medicine, a Lifelong Study" may be addressed to the office of the World Medical Association, 10 Columbus Circle, New York 19, N.Y. or to Mr. H. C. Papadopulo, British Medical Journal, B.M.A. House, Tavistock Square, London W.C. 1, England. The price is $17.00 per copy.

1961 Summer School in Health Education, London

The Central Council for Health Education is holding its Annual Summer School at the University College of North Wales, Neuadd Reichel, Bangor, from Tuesday, 15th August till Friday, 25th August, 1961.

Two "self-contained" seminars, one on Mental Health and one on Positive Health, each lasting two days, will be organised within the ten-day period. The remainder of the time will be devoted to group practical work including the production of visual aids, short films, filmstrips, leaflets and posters, and lectures and discussions on topics related to social medicine and health education.

The Annual Summer School is one of the highlights of the activities of The Central Council for Health Education and has gained international reputation. It offers an excellent opportunity for fieldworkers in all branches of Health Education throughout the world to meet and discuss mutual problems and exchange ideas. It is of particular value to Medical Officers, Members of the Nursing Profession, Public Health Inspectors, Health Education Officers, Social Workers, Welfare Officers, Health Visitors, Lecturers in Training Colleges, Teachers and other key people.

The fee for the course will be £25 4s. (tuition £12 12s.; residence £12 12s.) and applications to attend the School should be addressed to The Medical Director, The Central Council for Health Education, Tavistock House North, Tavistock Square, London, W.C. 1.

Darling Foundation Award

The President of the 14th World Health Assembly, Dr. A. L. Mudaliar, presented on February 9, 1961 the seventh award of the Darling Foundation medal and prize to Sir Gordon Covell, of the United Kingdom, and to Dr. Arnoldo Gabaldon, of Venezuela.

The Darling Foundation Prize is granted on recommendation of the Darling Foundation Committee for "outstanding achievements in pathology, aetiology, therapy, prophylaxis or control of malaria". It honours the memory of Dr. Samuel Taylor Darling, whose premature death by accident when on a mission for the Malaria Commission of the League of Nations cut short a long career devoted to research in the control of disease, particularly malaria.

In presenting the award, Dr. A. L. Mudaliar said: "Sir Gordon Covell's important contributions to malariology led, in 1936, to his being appointed Director of the Malaria Institute of India, a post which he held until 1947. During the second World War his own battle against malaria was carried on vigorously, and resulted in the saving of many lives in many theatres of operation.

In accepting the award, Sir Gordon recalled that when he was Director of the Malaria Institute of India, the Terai area in the State of Uttar Pradesh was used as an example of how devastating the effects of malaria could be.

In the absence of Dr. Gabaldon, the delegate of Venezuela, Dr. D. Castillo, received the ward on his behalf. In a message to the Assembly, Dr. Gabaldon expressed his gratitude for the award.

The Doris Odlum Prize, London

The Doris Odlum Prize (1962) will be awarded in 1962 for a study of Progress in the Community Care of Mental Disorder, a critical and constructive review of

advances made in this field in the five years ending on 30th September, 1961. This prize is of £80 in value. Any medical practitioner registered in the British Commonwealth or in the Republic of Ireland may compete. Forms and further particulars may be obtained from the Secretary, British Medical Association, B.M.A. House, Tavistock Square, London, W.C. 1.

American Surgeons to Present Postgraduate Course in Jerusalem

A group of 25 American specialists in nasal surgery will serve as instructors at the 2nd International Postgraduate Course in Reconstructive Surgery of the Nasal Sepum and External Pyramid, to be presented in Jerusalem, Israel, August 6-17.

The course will be under the auspices of the Department of Otorhinolaryngology, Mayer de Rothschild Hadassah University Hospital, and the Hebrew University-Hadassah Medical School of Jerusalem, in co-operation with the American Rhinologic Society. Lectures and demonstrations will be in English. Dr. Maurice H. Cottle of Chicago, professor of otorhinolaryngology, Chicago Medical School and founder of the American Rhinologic Society, will direct the course.

Further information may be obtained from Dr. Robert M. Hansen, secretary, American Rhinologic Society, 2210 Lloyd Centre, Portland 12, Ore., or to Dr. Moshe Prywes, Dean of the Hebrew University Hadassah Medical School, Jerusalem, Israel.

Liquid Adhesive for Stitches

Japanese doctors claimed, they had succeeded in using a liquid adhesive instead of stitches on a man following an appendicitis operation, reports Reuter. They said experiments on animals had been made in the U.S.A. and Australia.

A group of doctors at the Tokyo University Hospital used an American liquid adhesive on a Japanese last December.

The doctors claimed the wound closed in two minutes and that the man left the hospital two days after the operation.

The adhesive is normally used in the manufacture of electrical appliances.

Drug to Localise Malignant Growth

A technique of dyeing malignant tumours to assist in surgery has been developed at the Moscow Neurosurgery Institute, Tass said.

Mica with brain tumours had been injected with a chemical substance which in a short time became localised in the tumour.

As a result, the operating surgeon had been able to see the malignant growth with the naked eye and had been able to remove it completely.

Public Health Engineering

Prof. M. S. Thacker, Secretary, Ministry of Scientific Research and Cultural Affairs and Director-General, Scientific and Industrial Research, at an informal function at Nagpur on January 18, 1961 laid the foundation of the main building of the Central Public Health Engineering Research Institute—one of the 26 national laboratories to be established in India.

The main buildings and staff quarters to be constructed on 109 acres of land on Wardha Road, was estimated to cost over Rs. 25 lakhs.

The Institute has been allotted a grant of five million dollars from the U.N. Special Fund for equipment and apparatus.

Besides its headquarters located at Nagpur since April 1959 in a rented bungalow, the institute has also been working through four field centres at Poona, Bombay, Delhi and Hyderabad in envolving new methods and technique for treatment of water—both for urban and rural areas and industrial use, sewage treatment and ending hazards of industrial wastes.

Indian Microbiological Congress

The Fourth Annual Congress and Scientific Session of the Association of Microbiologists of India will be held at the Vallavbhai Patel Chest Institute, University of Delhi, from 31st March to 2nd April, 1961. Apart from presentation of original papers and demonstrations, a Symposium on Trends in Research on Viruses and Virus Diseases in India and a Group Discussion on Teaching of Microbiology in Indian Universities will be arranged. Contributors and participants are requested to contact the General Secretary at P-27, Prinsep Street, Calcutta 13.

The Healing Power of Atoms

The use of atomic radiation in the diagnosis and treatment of diseases as well as in medical research was the theme of the Atoms for Health exhibition, which Prime Minister Nehru inaugurated on 7-2-61 at the Defence Pavilion, Mathura Road.

Facts about atomic radiation had been placed in proper perspective with the help of charts, photographs and other exhibits.

One of the features of the exhibition was the detailed explanation of the nature and properties of atomic radiations, as well as the methods of their detection and measurement. These radiations were emitted by radioisotopes, some of which occur naturally and others can be prepared in nuclear reactors. Radioisotopes have proved valuable and versatile tools for research and treatment. With their help the course of metabolites in human body can be traced.

Radioisotopes can be used in curing several ailments. Photographs showed how different kinds of patients had responded to such treatment. Their uses in agricultural biology and research were also illustrated.

Gift of Medical Supplies from U.S. Ship

Medical supplies valued at $8,000 were presented to the J. J. Group of Hospitals in Bombay on 14-2-61 by officers and men of the U.S.S. Tanner.

The gift of 36 blood transfusion flasks, vulcanite teeth, sutures, absorbent cotton, about 5,000 iron tablets and other things was received by Dr. D. V. Virkar, the Dean of the Institution, from Capt. Harold W. Gehman, the Commanding Officer of the ship.

Dr. Virkar said that the gift would mark a deeper bond of understanding between India and the U.S.

Capt. Gehman said that the supplies were contributed by persons and institutions in America and collected by officers and men of the U.S.S. Tanner.

The Commanding Officer and the ship's doctor, Dr. L. G. Dickson, and Chaplain A. P. Spolm, were shown round the various landmarks in the history of the 1,000-bed hospital, including its pathology department and eye bank.

Health Schemes in Third Plan

The efforts of the Central Council of Health, to get ten per cent of the total outlay of the Third Plan allotted for health schemes, have not borne fruit.

The Union Health Ministry is now proceeding on the basis of a provisional outlay of Rs. 345 crores for health. Of this amount, Rs. 295 crores will be spent in the States and Union Territories and the balance of Rs. 50 crores will be utilised for purely Central and Centrally-sponsored schemes.

Urban water supply and sanitation schemes are being given priority in the Third Plan, the allocation for them being Rs. 88·5 crores. Family planning has been allotted Rs. 30·1 crores.

In regard to the classification of various health schemes, the idea of the Centre is to retain the four categories as in the Second Plan, namely, (1) purely Central, (2) Centrally-sponsored, (3) Centrally-aided and (4) State schemes. The intention is to treat family planning, post-graduate medical education and research in indigenous systems of medicine as Centrally-sponsored schemes. In respect of family planning and research in indigenous systems of medicine, the Centre propose to give cent per cent assistance to the States but in regard to post-graduate medical education, assistance would be given in full only for the additional staff, cost of equipment and stipends paid to the trainees.

Expansion of the Medical College in Mangalore

Postgraduate courses in anatomy, pathology and bacteriology were inaugurated in the Kasturba Medical College at Mangalore on 10-2-61. The Vice-Chancellor of Karnataka University, Mr. D. C. Pavate, was the guest of honour.

Welcoming the expansion of the College, Mr. Pavate urged the opening of a pharmaceutical department in the institution.

Mr. Manel Srinivasa Nayak, Municipal Chairman, who presided, complimented the college on its achievements.

Mobile Hospitals in Maharashtra

The Maharashtra Government proposes to introduce 12 mobile hospitals in the State, said Mr. Homi J. H. Taleyarkhan, Maharashtra's Minister for Health, while inaugurating the State's first mobile hospital in the village of Phulmary about 15 miles from Aurangabad.

If the proposal materialised, it would take medical aid to the place where it was not available now.

Each of these mobile hospitals would be designed to accommodate about 15 patients and would be stationed at selected places for periods of two to three months.

After-care Colony for Leprosy Patients

The West Bengal State Government has selected a site, about 13 miles off Bankura for the establishment of an after-care colony for leprosy patients. For the purpose, 182 acres of land have been acquired and it is hoped that work for the construction of the colony will start soon.

The State Health Minister, Dr. A. B. Roy, told newsmen at Writers' Buildings that a sum of Rs. 2 lakhs has been set apart for initial expenses. Those leprosy patients who had been cured of their disease, would be accommodated in the colony. Steps were also being taken for their economic rehabilitation.

CORRESPONDENCE

The Editor is not responsible for the views expressed by correspondents

Death After An Injection of Vitamin B_{12}

SIR,—A Bata employee, Hindu, male, aged 48, was under insulin therapy for diabetes. Injection of thiamine hydrochloride, 100 mg., was advised for associated peripheral neuritis. He received two injections of the latter drug but each time he had mild reactions in the form of urticaria which was treated with adrenaline by injection and an antihistaminic by mouth. Injection of thiamine hydrochloride was stopped and the patient was advised a course of vitamin B_{12}, 500 mcg. intramuscularly.

On 15-12-60 he worked in the factory from 6-45 to 8-50 A.M. and went to the outpatient department (O.P.D.) for the injection. His urine which was examined the same morning contained 3·5 per cent sugar. At about 9-30 A.M. he received his first intramuscular injection of vitamis B_{12} at the O.P.D. Macrabin, 500 mcg. in 0·5 ml. dose (from a freshly purchased vial of 5 ml. containing 1000 mcg. per ml.) was injected into the deltoid muscle.

Immediately after the injection the patient became very restless and collapsed. The pulse became imperceptible, and there was respiratory difficulty. The symptoms resembled those of anaphylactic shock. Adrenaline was injected immediately. Percorten and antihistaminic drugs were also injected. But all attempts at resuscitation failed and the patient expired within 15 minutes.

Anaphylactic shock after injection of vitamin B_{12} resulting in death must be very rare. Comments throwing light on this subject will be highly appreciated. I am, etc.,

Batanagar, 24 Parganas — A. N. ROY

Medical Facilities in Tea Plantation

SIR,—It is gratifying to note that our National Government is taking active interest as regards the health of the tea garden population, which was utterly neglected during alien rule. Under the purview of the Plantation Act of 1951 many welfare measures are going to be implemented in plantations in the best interest of the workers.

But for the proper running of the same, sufficient staff should be provided lest the service suffers. Strictly speaking, the work of medical staff is nowadays becoming more clerical than medical. It is reported that clerks are provided in some tea garden hospitals, while in others employers are trying to increase clerical work of the already overburdened medical staff. I do not know how much a doctor can devote to examine a case during the season time. It is high time that this vital point is looked into. I earnestly appeal to all concerned to consider it seriously and allot a minimum time for the examination of a patient. For the efficient running of the service, the working system should be formulated by the Medical Advisory Board, I am, etc.,

Gohpur T.E. & P.O.
Dist. Darrang
(Assam)

(Dr.) S. R. DHAR
President, AIMLA, Assam Branch,
Member, Assam Medical Council,
Assistant Secretary, P.M.S.A.I.

Service Conditions of Doctors

SIR,—Very often we find news flashed of the dearth of doctors in our country and whenever an occasion arises, our political leaders advise that doctors should have the missionary spirit and go back to the villages to serve the suffering humanity.

To solve the problem, suggestions have even been made that it should be made compulsory for fresh graduates to work in rural areas for 2-3 years before starting practice in cities. Some even told pressmen that even after offering attractive terms some of their health centres and dispensaries are lying vacant for want of co-operation from the medical practitioners. It is totally forgotten by these politicians that those medicos are the brilliant products of their Universities and the nobleness and independence of the profession made them choose it. But alas! after qualifying, most of them either do not find proper employment or do not get the impetus of establishing themselves for the unequal competition from quacks that the law is not adequate to deal with. Sometimes they wonder whether by choosing this profession they have blundered or not. Our politicians forget that medical people also are accustomed to many of the bare amenities of life such as satisfactory living conditions, educational facilities for their children and an attractive pay and respectable service conditions. But the attitude of our State Government towards the service conditions and allowances are not so alluring that any ambitious doctor will fancy service in the present conditions. Having 10 years' experience, I tried my best to establish myself in private practice in a remote village but after vain efforts for 4 years, in view of lack of co-operation from the villagers and heavy quack practice I had to abandon my practice and take a job in a commercial firm with humiliating service conditions.

After reading in newspapers the demand of doctors by State Governments I applied to one State which very kindly offered me an interview for a post having a pay scale of Rs. 120—Rs. 275 per month and which emphatically declined a higher start. Such being the condition it is wholly unjustified to put the blame on the poor doctors alone for not co-operating with the State Governments. In my opinion there is no dearth of doctors; on the other hand, the absence of proper salaries and facilities is the main cause for the poor response from the medical people. This requires immediate adjustments. I am, etc.,

P.O. Khopa
Dt. Nagpur
Maharashtra

P. BHATTACHARJEE

Revival of Medical Schools

SIR,—We are perturbed to note that a proposal has been made to revive medical schools again to create medical licentiates and to send them to villages where shortage of doctors is said to be existing. This is really strange. By continued efforts of the medical associations and the conscious public, the medical schools in India had been closed by the Government from 1948, the reasons advocated at that time being (1) there should be one uniform standard of medical education in the country, (2) villagers have got the right to get the same form of medical help as citizens. Moreover, during the last 14 years after independence, many medical colleges had been started in the country where many doctors are being created and within the next 5 years thousands of them will be coming out. In the cities, specially in West Bengal, there are already lots of unemployed qualified doctors, ready to go to villages, provided proper living wages are given to them and they can get other amenities of a decent life including education of their children.

We would earnestly appeal for reconsideration of the position, before huge national wealth is wasted, there being no guarantee that the licentiates will even now agree to go to villages as they are at present conditioned. I am, etc.,

44, Station Road
Dhakuria, Calcutta 13

A. C. SEN GUPTA
Secretary
I.M.A., Dhakuria Branch

Mental Effects of Ligation and Other Sterilisation Operations

SIR,—With reference to the above article (*J. Indian M. A.*, **36**: 95, 1961) the author has given his experience of those women who have had mental defects after the sterilisation operations done on them. I fully agree with the views expressed by the author.

I give here my experience of women developing hysteria and allied mental symptoms after their husbands had undergone vasectomy operations. I have come across a few such cases of hysteria who were confirmed as hysteria not only by me but by expert consultants also, after carefully excluding any organic causes. It is interesting to note that all these women suffered only after their husbands had undergone the vasectomy operations.

In view of this, the protagonists of Family Planning, should proceed cautiously with the radical operations like vasectomy, ligation of fallopian tubes and hysterectomy, much more so in men and women who are young. I am etc.,

Tirumangalam.

(Dr.) R. ANNAMALAI

REVIEWS

Diseases of the Skin—By James Marshall, M.D. (LOND.); 1960, E. & S. Livingstone, Ltd., Edinburgh and London; 8½"×5⅓", pp. viii+944; 496 illustrations in black and white; 84s.

This book is intended by the author to "provide a text that undergraduates and general practitioners may use for references and that will serve as introductory reading for postgraduate students." His hope has been amply fulfilled.

The book uses only black and white pictures of African race which is a departure from the usual practice by European authors. The illustrations are mostly very good and will be of better help to students in this country. The author's connections with the French school of dermatology are evident which has enriched the text very much specially in the chapter on lucites.

Printing and the general get-up are very good.

T. D. MAJUMDAR

Eliason's Surgical Nursing—By L. Kraeer Ferguson, A.B., M.D., F.A.C.S. and Lillian A. Sholtis, R.N., B.S., M.S.; 11th edition 1960, Pitman Medical Publishing Co. Ltd., London; 9"×6", pp. xvi+766; 50s. net.

This work should be very helpful to student nurses in India as it covers the full syllabus laid down by the Indian Nursing Council; nursing cases have been well explained; the patient has been considered as a person in the society with all his problems; simple language has been used; and a good number of illustrations drawing attention to and creating interest in surgery have been included.

In the reviewer's opinion the book should be chosen as a text-book in each training institute. The price however is too high for the average nurse. A concession for students will be very much appreciated.

UMA SENGUPTA

OBITUARIES

Dr. S. B. Mathur

Dr. S. B. Mathur was born in 1896. He obtained the M.B.B.S. degree from the Grant Medical College, Bombay, in 1923 and served as a Medical Officer-in-charge, Sadar Hospital, Rampur State. In 1931, he migrated to Delhi and started private practice.

Dr. Mathur died of coronary thrombosis on December 7, 1960. He was an active member of the Association, and used to take keen interest in its activities till his death.

Dr. D. N. Khandekar

Dr. Dinkar Nilkhant Khandekar was born at Barora and was educated in M. S. High School. After passing the Matriculation examination with credit he joined the K. E. H. Medical School, Indore. He passed the L.M.P. (C.P.) from Nagpur. He was appointed House Surgeon in the K. E. Hospital and later on settled in private practice. In course of time he rose to the position of an eminent physician of Indore. He was connected with many public institutions and was known as a forefront public worker. For many years he was the Joint Secretary of the Indian Medical Association, Indore Branch, Secretary of the Journal of the Medical Association, Provincial Secretary of All India Medical Licentiates' Association, Hony. Secretary of the Indore Branch of All India Medical Licentiates' Association, an active member of Mangliya Clinic (Rural) of the I.M.A., Indore, Secretary of the Souvenir of the 36th All India Medical Conference, Indore.

DR. D. N. KHANDEKAR

Dr. Khandekar was popular with his patients and was specially very kind to the poor. He had an attack of angina in his clinic on 7th September, 1960 and a coronary attack on 24th September, 1960. He was convalescing when he had a second coronary attack on 11th October, 1960, to which he succumbed the next day.

The untimely death of Dr. Khandekar has caused a big gap in the medical profession and the Association has lost a great man. He was only 47.

Dr. A. N. Sharma

Dr. A. N. Sharma was born at Peshawar (Pakistan) on April 9, 1899. He was adventurous from his childhood. He joined the Indian Army after passing the Matriculation examination. Here he was selected to be trained and qualified as a doctor from the Medical School, Amritsar, from where he passed out in 1921.

DR. A. N. SHARMA

Dr. Sharma served the Indian Army in its various overseas operations specially in the Arab countries up till 1928. In 1928 he shifted to the Indian Railways. He finally retired in October 1954 and started private practice. He was a great lover of sports.

Dr. Sharma passed away on October 16, 1960.

CORRIGENDA

VOLUME 36, NO. 3, FEBRUARY 1, 1961 ISSUE

In page 103, column 2, line 4, the qualifications of the author, M. M. Ganguly, *should read* M.B., D.I.H. (CAL.).

In page 122, column 2, the legend of the block at the bottom *should read* DR. M. N. VAINGANKAR.

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SUPPLEMENT
Journal of the Indian Medical Association

VOL. 36 No. 6 CALCUTTA MARCH 16, 1961

VII DELHI STATE MEDICAL CONFERENCE, DELHI, 1961

The 7th Delhi State Medical Conference was held at Delhi on 20-22 January, 1961. Lt.-Col. V. Srinivasan, Director-General, Health Services, inaugurated the Conference and Dr. Prakash C. Bhatla presided over it. Lt.-Col. Amir Chand was the chairman, Reception Committee, and Dr. G. D. Dhalla was the organising secretary. Lt.-Col. Amir Chand extended a cordial welcome to Lt.-Col. V. Srinivasan and to other distinguished guests and delegates.

WELCOME ADDRESS

In his address, Lt.-Col. Amir Chand appealed to all members for their financial contribution to the building fund of the State Association. He referred to the DMA Health Insurance Scheme which had not made much headway. He also discussed in detail the question of adulteration in food-stuff and referred to government's failure to tackle it, though it is a major problem.

PRESIDENTIAL ADDRESS

In his presidential address, Dr. Prakash C. Bhatla said *inter alia*, the following :

"Medical care does not consist of charging fees and "Selling" (?) medicines, mixture and prescriptions. A medical man has to be and is more than a scientifically skilful person who applies his knowledge to the treatment of disease. The basic factor is the human side of treatment. A doctor has to be vigilant and extra careful and has to understand that medical care is not complete without the warmth, understanding and sympathetic approach and human concern of the doctor. The patients expectantly approach the doctor for advice when they are victims of pain, fear, sorrow and worry. The doctor's job becomes double to cure the disease but important still to cure the patient—to allay his fear, to ease sorrow, to inspire hope and to strengthen the patient's determination to get well with his soothing sympathetic though human words.

My object today this afternoon will be to put before the society of how we feel about the society and its care and uplift and how we could share the responsibility as its members. I would also place before them, in brief, the salient points of topical interest which have a bearing on the present state of health affairs in our State and practical aspect of the hindrances, handicaps and difficulties as being faced by the physician during the course of the discharge of his duties. To some it may look repetition but I state the facts and beseach you for an impartial assessment and adequate remedy which to my mind is not at all elusive but within the reach of the society if we get their undivided attention and sympathetic understanding.

Yes, the practice of medicine does depend upon science but it still remains an art and that art cannot be regulated by "machines" and run on other's dictates. There are many critics outside the profession who do, in addition to many who threaten to, intrude upon the independence of the medical profession and its working. The events during the past years suggest this and the events of the present confirm it. The events of the future will depend upon the profession's ability to meet this challenge.

SOLIDARITY OF THE PROFESSION :

That brings us to the question of solidarity of the profession. Are we so united? I would say, No. How then can we meet this challenge effectively? We have today in our branch about 800 members against an estimate of about an equal number of medical men who could be our members but who have till now chosen to remain out. Why, we know not the reason. But if I have studied the problem correctly I would say that about 85-90 per cent of the men in private practice are our members but of those in service and in the various institutions we cannot claim to have more than 30 per cent membership. Obviously the nature of duties and hours of work of the two are widely apart and active participation by the latter in the scientific, cultural and social activities of our organisation being not possible, they may have been hesitant to join. Certainly we could make membership for such men also possible by enlarging the sphere of activities and we have to make proper efforts in this field also. The Association is the custodian of the rights and privileges of all members and with 100 per cent membership it can meet the challenge faced against any section in the efficient discharge of their duties. "Actions speak louder than words, the words are without value unless backed by deeds. Let the image of our profession be the reflection of our solidarity and not our shadows."

STUDENT HEALTH SERVICE :

"We hold the view that Universities have responsibilities in respect of the health of their students and that for the fulfilment of these responsibilities each should provide a properly organised student health service." Thus observed the Goodenough Report on Medical Education which appeared in the U.K. in 1944. What holds good in U.K. for the children, can also be applicable in our country.

Little mention is ever made of such services in the Universities or in the colleges or the schools. It is encouraging, however, to learn that such service as "school health service" does exist in our State. Without going into the merit or the inadequacy of the project and its field of work, it is however my strong conviction that it is the nation's responsibility of looking after the health of its citizens, specially I would say, of the future generations on whose shoulders the mantle of responsibility has to fall—if the shoulders are weak and stooping what will happen, I leave it to your imagination.

Why is the aspect of "prevention" not given priority and in prevention I do not count the once in a while shot of a vaccine here and there—I would dare to suggest a concrete programme on State level with the help of the DMA—which would include regular tuberculin tests and chest radiography of tuberculin positive reactors, regular programme of vaccination and immunisation, psychiatric evaluation, the supervision of environmental hygiene, health education, attention toward personal and dental hygiene—all of which come within

the preventive field. Can't the co-operation from the private medical practitioners through the DMA be sought to make this programme possible?

I am not convinced by the individual part-time doctors' rule in carrying out the so-called "routine" examination in the "routine" way on the "routine" directives. This word "routine" implies stereotyped form-filling and purely superficial examination of eyes, throat, teeth, 'short-sight', 'flat foot' and various measurements—all to be completed on scores of children in the limited ½ to 1 hour and, that too at almost 4 to 5 naya paisa per examination in view of the meagre 25 to 50 rupees paid per month to the part-time M.O.—and the examinations being conducted in a room, corridor, or a verandah which gives the look of anything but a hospital, consultation chamber, clinic, or a dispensary. What is the result? The child never feels he is being given a medical checkup, for that matter the parents and guardians never appreciate the importance of the problem. The real truth is, whether the country can afford to remain without it. If this state of affairs are allowed to drift along and specially for years when we can never expect adequacy in the medical relief by the state, we are certainly laying the seeds of a "disease" that may after sometime prove to be out of control.

The President of India urged parents, local bodies and State governments while broadcasting on the 14th November, 1960 on the occasion of the Children's Day to give "top priority" to the problems of the children whom he described as "the nation's most precious treasure".

Delhi on account of its special position must be a model State and what Rashtrapati had wished will not be difficult at all to fulfil—what we need is less of red-tape, less of committees and less of very busy V.I.Ps. to do it. Little bit is being done in patches here and there but these measures should be given "first priority" as enunciated by Rashtrapatiji.

PHARMACEUTICAL INDUSTRY :

If at all any industry could be near to the profession, it is the pharmaceutical industry. Who doubts the importance of the role that the industry has toward the society in the provision of ethical products for use of the patients. It is heartening to note the great strides this industry has made in the recent years in fulfilling the needs of the profession, in making available to them the tools to apply their knowledge. Pharmacy, far from being a collection of herbs or the combination of drastic mineral salts has of late become a scientific industry and one of no small importance.

The industry is commercial in outlook and we need have absolutely no doubts to that in our minds, but the confidence it has gained, of the profession is because of its scientific approach, coupled with very methodical and planned research work carried on in their pharmacological, physiological and analytical laboratories, fully equipped to handle any research problem. The cost of the research work has to be met and adequate provision also assured of its continuity as also the maintenance of highly trained personnel which tell upon the cost of the finished product. It is no secret that hundreds of products may simultaneously be on trial and even one preparation may not be put in the market. For all this maintenance and for future expansion and to safeguard efficiency in the factories, the products manufactured are marketed in the modern scientific manner necessitating publicity, and the propaganda to the profession through the direct mailings, and through the medical press or by personal approach through their representatives.

A doctor is as well a human being and as such may succumb to the charming personality and persuasiveness of the salesman but the doctor is also a potential consumer and never for a moment, loses sight of the essential aspect of the problem viz. the reliability, usefulness or otherwise of the particular drug. He has a responsibility to his patients and for no reason, whatsoever, he can afford to forget this at the altar of the so-called fancy propaganda. I feel this as essential. Yes, the cost of the drug does go high but who can help this, if there is an independent industry which under the laws of the country is independent to make known its products through all appropriate channels to catch the eye of the consumer. If one firm does it others also have to follow, unless of course, the whole industry is nationalised, as in some countries, and then it may choose to withhold the propaganda, leaving as it does, no choice for the medical profession but to use what is available from the assembly line.

I am in complete agreement with the views that no pharmaceutical product be advertised in lay press at any cost, and that strict and rigid control be imposed on the factories and side by side to discourage "Mushroom" pharmaceutical houses which virtually do not have any factories or laboratories, etc. This would need closest co-operation of the industry, the association and the public.

There is a trend which is gaining ground, i.e., the race in prescribing "the latest" drugs at the slightest pretext and with a view to have "wider spectrum", to use a combination of drugs most often very expensive ones with the complacent feelings of "leave nothing to chance". This practice needs careful study and scrutiny by the profession and a moral check is all that is needed to save the cost of treatment, save the excessive drugging and to save national wastage.

Medical science is progressive and with the advances in the study and functions of the different cells of the organs, it would be in the fitness of things that in these days of specialisation we could prescribe the least, i.e., the only drug and in such quantity that could help in correcting the disorganised function of the body. We can do it often, but sometimes cannot. If the modern scientific system cannot do it, who would.

Uptil recent years the pharmaceutical houses in our country were nothing but bottlers, labellers and distributors. But then why isolate the pharmaceutical industry in this regard in comparison to all other industries in our country. Everything has a beginning and with the active collaboration of foreign well-established, renowned, trusted pharmaceutical houses, quite a number of laboratories have been set up and enough progress made to manufacture drugs right from its initial stages. With the availability of the raw materials we can hope to be self-sufficient in the drugs.

Those pharmaceutical companies who have or who contemplate undertaking manufacture of basic ingredients and research in the field of drugs particularly the antibiotics and biological products need every encouragement by the state and the profession.

FIVE YEAR PLANS :

It is a well known fact that the recommendations of the Bhore Committee were very comprehensive both as regards the long term and the short term programmes, but very little, if at all, has been done towards attaining that goal in the intervening period. The Health plans were inaugurated with some seriousness but the financial outlay has not been near what our needs or the "emergency" demands. How is this financial allotment (300 crores for the country) would suffice for the services envisaged during the next five years, is also not understandable. The figure looks infinitesimal when we have to give top priority to the health of the nation —give them prophylactic treatment, arrange adequate housing in healthy surroundings, have pure drinking water supply, remove the existing slums and create conditions whereby new slums do not multiply, arrange for public health services and provide proper sanitation, impart health education, etc. etc. All plans however ambitious in other spheres will nullify the progress of the nation if adequate consideration is not paid to the

LT.-COL. AMIR CHAND
CHAIRMAN, RECEPTION COMMITTEE

DR. PRAKASH C. BHATIA
PRESIDENT OF THE CONFERENCE

DR. G. D. DHALLA
ORGANISING SECRETARY

health problems in their proper priority, attention to which has been pointedly drawn in the recommendations of the Indian Medical Association since published.

FAMILY PLANNING :

Increasing population becomes a major problem in the country if the state is not able to cope up with the provision of adequate civic amenities. Government five year plans will be of no avail and the resultant improvement will pale into insignificance if serious efforts are not made to tackle the problem almost on "war-footing". Probably the national census during March 1961 will reveal the true picture and we should be prepared for the revealing shock if this increase is more than 2 per thousand. The I.M.A. after careful study of the problem, suggested to the Government of India a comprehensive scheme of participation by the medical profession in this national problem and the Government of India, Ministry of Health, has approved the suggestion in toto.

Who has not read the prediction of the UIA who have categorically said that "the world would end in 50 years not due to atomic war but by the pressure of human beings squeezing each other to death for want of living space on this earth if the present increase of rate of population all over the world is allowed to continue". On our part have we to wait for that day or with the active imaginative mind given to the human being, we can prevent such a catastrophe? Doctor Karunakaran in his presidential address at the All India Medical Conference suggested legislation of abortion with much criticism and recently our Health Minister has also not approved of this. If the same cannot be done on moral and ethical grounds what is wrong with our state making adequate arrangements for sterilisation of the male or female the facilities for which may be provided free by the state. There is better scope of tackling the problem with the help of the Family Physician than distribution of contraceptives on the counter.

MEDICAL RELIEF WORK IN RURAL AREAS :

With the conditions as they exist today in our villages what is actually needed is not fresh graduates from the colleges but a little experienced persons, who have been assured of adequate financial and economic assistance as well as assured of proper facilities for work, adequate equipment—failing which some students could be selected and given free medical education on their opting for service in villages and far-flung places but on proper remuneration and service facilities. Is it not possible to take the specialised medical aid to the villages rather than make the people leave the villages and run to big cities for any medical aid? I am not inclined to suggest opening of a Rural Medical College—residential unit—in Delhi State which is already saturated with medical colleges but the scheme of Rural Medical College to my mind, is workable in any other state in India, if only we tackle the problem with a realistic mind and not on imaginary handicaps and difficulties about the feasibility. "Medical Enclaves" could be built in rural areas with full-fledged hospitals and the college.

INDIGENOUS SYSTEM OF MEDICINE :

Our great country is blessed with a variety of indigenous systems of medicine and a host of other secret and traditional magic remedies initiated as gifts of "Rishis" and "Sadhus" and passed on from one generation to another, i.e., "Khandani". These have been described as part of the glories of the past. But we have to be realistic and practical and pose ourselves a question as to how much, if at all, has now remained with us today and how far or to what extent can we build upon this traditional system, which to my mind is nothing but a poor material and remnants. No one has built any buildings on remnants—one has to have new foundations dug up for new structures, if at all we want the structure to survive. But torn as we are with superstitions and blind beliefs we, in our false vanity still continue to have dreams and entertain visions of its usefulness and growth. Our blind superstitions and dogged faith in such things have left us still amidst new prejudices after the attainment of independence, that today's medicine is foreign. That is why the science that we practise and now termed the "modern scientific or modern system of medicine" appears to our prejudiced eyes as foreign and hence the contempt and hatred with which it is so seen by quite a few of our otherwise enlightened citizens. In this age, when scientific discoveries have made the world look small, how long would we still stick to our outmoded, time-worn and the forgotten medicine which is now almost lost to this generation. I am not against the other systems of medicines but am convinced that today only one system of medicine can survive and that which incorporates all that is proved by scientific research and adopted as useful for the practice of the art of medicine,

Science is progressive and all the scientific discoveries are for common good and as such science is universal and knows no barriers of nationality, creed or faith. We should shed our ignorance, and look upon medical science today as the one that has synthesised itself from the discoveries, experimentation, observations and researches of no matter from what individual, or from what country. As such the most appreciable move today would be to explore, investigate and adopt all the effective therapeutic agents available in pharmacopia of all ancient systems of medicine, after properly asessing their values by modern available tests in centres for trials properly organised, subsidised and supervised. This is the responsibility of the modern Science to come out with the theories and exact explanation why a particular drug came to be used and found its place in the pharmacopia of the ancient systems. This would be the greatest contribution of ancient systems of India in enriching the modern medicine today.

PAY SCALE, STATUS AND SERVICE CONDITIONS OF DOCTORS IN SERVICE :

The I.M.A. has made certain recommendation to the government in this regard of getting a fair treatment for the doctors. It is a pity that, on the one hand more medical colleges are being opened and, on the other hand, no provision is being made for absorbing these skilled men of profession in respectable and honourable positions. The various advertisements appearing every day offering a graduate in medicine a mere Rs. 100/- or 160/- as starting pay is but a slur and a joke on the society. This is the price that the society and the Government extract from the profession for its nobility, righteousness and skill. A doctor cannot afford to be ill informed and make mistakes and shirk responsibility to use his professional skill at any time of day and night. The Pay Commission during its report recently did appreciate the vigorous training and arduous nature of the duties that goes in the making and the working of a medical man and they did recommend a higher pay scale and better service conditions. Although these recommendations fall short of the I.M.A. recommendations but at least the awakening is there. The I.M.A. is fully conscious of the national revenues and is not asking for something that is extraordinary or preferential. The recent notification of the Government of India regarding new pay scales is the step in the right direction and if a little more attention is paid and the position again reviewed with the goodwill and understanding the views of the I.M.A. in this direction would look appropriate and acceptable.

EQUITABLE DISTRIBUTION OF DOCTORS IN DIFFERENT STATES IN INDIA :

Torn with the conflicts as we stand today, of linguism, provincialism, religion, sectionalism, sectarianism, leading to a feeling of frustration in a few intelligent ones and to a feeling of jealousy and hatred in the majority, how far we can achieve this goal is yet not clear. When will the vivisection of the country into so-called administrative units end or when will we start feeling India as our home, is yet not understandable. Those of us who are not pessimists will treat these tendencies as teething troubles in the growth of our country and with proper guidance and leadership we have got to forget these petty fends and plan for India as a whole. Some of the states have to remain more "civilised" and progressive for sometime to come and as such trained personnel in various fields have to be more in those states. It is in the fitness of things that the other less privileged states should welcome the overflow of trained skilled persons from the former states and treat them with equal respect as those from their own state and allow them to gain employment as it being done in our state where every one is welcome and where every one finds himself at home.

REGISTERED MEDICAL PRACTITIONERS :

Does any one know the definition of a Regd. Medical Practitioner? It would be a great achievement if for once the only standard definition is coined which should have a uniform application so far the various Acts like the Pharmacy Act, Drug Act, Narcotics Act, Indian Medical Council Act and other relevant Acts are concerned, viz., a definition suggested by the Central Council of Health if I remember correctly, about three years ago, viz. "A medical man registered with one of the State Medical Councils under the Indian Medical Council Act".

In this state, as I believe in other states as well, more persons designate themselves as "regd. medical practitioner" who are not qualified under the Indian Medical Degrees Act nor registered under the I.M.C. Act, e.g., a pharmacist, a vaid, a homoeopath, a hakim to whom a sort of certificate or a form has been issued the possession of which has emboldened them to designate themselves prominently as R.M.P. (Regd. Medical Practitioner)...these words bestowing on them so-called 'licence' or impunity to order, stocks and use all narcotic drugs and other poisonous drugs and in such quantities as ordered. I am sure the Narcotic Act was meant to restrict the use of such poisons as morphia, cocaine, pethidine, etc. by only the qualified doctors duly trained in the modern system of medicine and registered under the I.M.C. Act. How can then these poisonous drugs be issued and allowed to be used by others not trained to use them? An enquiry into this obvious irregularity is certainly called for and it would be worth-while laying down the minimum qualifications possession of which alone entitles doctors to use the drugs.

USE OF THE PREFIX DOCTOR OR "DR."

In the same context and with a view to properly guide the patient, it is necessary to lay down clear regulations for the persons competent to use the words Doctor (Dr.) and/or the words "Physician", "Surgeon" and "Medical Practitioner" with their names, by restricting use of those words for use by the qualified doctor in modern scientific system of medicine. A bill of this nature was reported to be before the Punjab State Assembly and the fate of the same is awaited, if it has already not fallen a prey to the political influence, indecision and inactivity. Why can't it be an Act of the Parliament and the Government of India see its way to sponsor it at the earliest, keeping an eye on the trained and duly qualified doctors in the country as also on the 58 medical colleges having a turn out of 5000-6000 medical graduates a year? Certainly to put an end to the menace of Quackery, which is ever on the increase in our country, it would be a wise measure to be adopted and side by side the Government should educate the public in this regard; prohibit by law addition of alphabets in fancy combinations after names, stop medical education by postal methods, investigate and order closure of undesirable medical teaching shops and above all take necessary steps by which a fully qualified doctor who wishes to start practice should be in possession of a Licence for practice which should define in clear and exact words what he has qualified in and what he can practise and in what system (e.g. vedic, unani, homoeopathic, or the modern scientific system). Can any one without the degree in Law practise that profession in our country whereas any one with or without degree in medicine, with or without training in the art of healing, educated or uneducated can practise as a Medical man and is allowed by the society to play with human life and to run rampant with the potent dangerous drugs on the unwary human beings. These steps need immediate attention if we mean to curb quackery and root out the evil that traps the poor ignorant and the simple folks under the garb of a fully trained doctor.

MEDICAL COUNCIL OF INDIA :

The I.M.A. has repeatedly made known its views and recommendations and suggested amendments in the Act for a fair deal to the association, specially the Licentiate doctors in the country. Nothing has so far been achieved and as matters stand nothing is expected to be agreed to by the Medical Council of India, who appears to sit tight on their verdict so far. My plea to those who do not appear to fall in line with the I.M.A. views is to bless us with the wisdom of their experience and knowledge of why they, as medical men prefer to stand in the way of the considered opinion of the association.

OUR LICENTIATE COLLEAGUES :

Medical knowledge is advancing at rapid pace and is liable to get out of date without giving opportunities to the doctors to refresh their knowledge and to study further if they so desire and I make a pointed reference to the fate of our licentiate colleagues. Though qualified and having attained considerable experience they are not treated with the respect and dignity that should be their humble due. Why are they not allowed to join some services like the armed forces through competition and others like the C.H.S. and E.S.I., the Life Insurance Corporation or School Health Services and even in the Medical Council of India they are kept in a separate schedule inspite of the protests by the Indian Medical Association for quite a few years? This compartmentalism being kept up under the garb of reciprocity needs correction and removal of the illusion of dependency and reciprocity with other countries.

Why are the condensed M.B.B.S. courses stopped all over the country? These need revival and those medical Licentiates who would like to study for these condensed courses should be immediately given opportunities to do so, if not encouraged to do so, with a view to establish in this country a uniform minimum standard of medical qualification, i.e., a graduate in medicine, as is the considered view of the I.M.A.

Any compromise in lowering the medical standard and training for the sake of short term expediency will be a terrible set back to the progress of medicine in our country. The suggestion of the Planning Commission and of certain other quarters of the proposal of restarting Licentiate courses in Medicine in the country, needs utmost condemnation. Such a step is retrograde, highly unnecessary and certainly not the answer to create numbers. Already the turn out in the colleges is enormous for the State to provide for, why do the government now fight shy of their responsibility and again put in Licentiates so that they could exploit them at cheaper emoluments? Are'nt the Licentiates unhappy enough that you wish to have more of them?

LAWS AFFECTING THE MEDICAL PROFESSION :

The profession is feeling stifled and choked and time has come when something has to be planned in an organised way to make the Government agencies, public and the patients in particular, feel what the profession is going through and how it is quietly suffering in the service of the sick. How discouraging is the account that our profession has to present when, again and again, we have to approach the authorities for redress of our difficulties. I would enumerate a few of these as illustrations :

1. *Spirituous Preparations* : Restrictions of purchase and storage of essential spirituous preparation to a maximum of 1 lb.

2. *Availability of Essential Narcotics* : Restriction on the purchase, storage and transit of essential narcotics like Pethidine, Morphia, etc. What an anamoly exists inspite of pointed reference. The law allows a doctor to prescribe the narcotics to a patient which the patient can get dispensed by a licensed chemist, but if the same regd. medical practitioner were to buy the same drug for use on his own patients in his own dispensary he cannot do so—the law comes in the way—he has to be in possession of a purchase permit and then a transport permit—which means he can purchase and transport the drug to his office but obviously cannot keep it in the emergency bag (I wonder if that is the intention of the law). How often the doctor has had to spend hours, days and weeks in obtaining these permits—Who loses, certainly not the doctor but the patient in emergennt need, whom the administration of the medicine may be delayed and many a time there may be no time leit to use it.

3. *Sales Tax Act* : Further restriction in the way of independent practice is the imposition of Sales Tax Act on the dispensings in doctors' clinics and dispensaries under the beautifully worded description in the industrial revolution age, i.e., "manufacture". Where, how and under what stretch of imagination could the dispensing of medicine for individual needs of a particular patient by a doctor in his own dispensary be defined as a "Manufacture"? A few years back the Delhi State authorities did look into the real aspect of this "Sale" and raised the exemption limit from 10,000 per year to Rs. 30,000 in the case of doctors, on this so-called "Sale". Strangely enough without reference to the DMA this limit has again been reduced to Rs. 24,000. Why? We do not know and we are not supposed to know either—but the facts are as they are presented.

4. *Eviction of Doctors from residential localities* : The doctors are now being declared persons *"non grata"*. Now the latest discriminating law against them has led to enforcement of the prohibitory regulation against doctors practising the art of medicine in residential localities. They are supposed to fix up their clinic, offices, dispensaries in business areas only. Is this progress? Do we call this as social uplift? The doctors are being served notices by the authorities for extra ground rents, premium, etc. as also the landlords are serving notices of eviction on their doctor-tenants. Where do the authorities want the doctors to go? Do they want the doctors to leave their profession and turn into businessmen? The members are put to inconvenience, are harassed and the Association feels pained at the treatment being meted out to the profession. It knocks at the doors of authorities that are, but to what avail—when would someone really understand the problem and try to do justice. As many administrators, as many decisions—sometime areas in new colonies are planned for allotment to doctors to practise medicine and other times they are asked to quit the residential areas where they happen to set up their practice.

5. *Shop and Establishment Act* : In the same context, I would say a few words about the Shop and Establishment Act. How the administration machinery works, I do not know but the changes it makes do concern us. Legal profession and medical profession after protracted negotiations got total exemption under the act. Without informing it and without consulting the D.M.A. act was reimposed over night. The D.M.A. again made a representation not for its own advantage but in the interest of the ailing public, in offering them service at all hours all the days round, unhampered by regulations of any kind. It must be understood once and for all that a doctor alone is not enough to run a clinic or a hospital or a nursing home or dispensary. His ancilliary staff is as essential as himself if at all the patient is to be treated properly. These laws and regulations are said to be made for these "ancilliary staff". A tripartite gentleman's agreement was arrived at between the government, the pharmacists association and the D.M.A. on certain mutually agreed concessions by doctors to their staff. Inspite of this having worked efficiently and smoothly the government has not yet in its wisdom proclaimed withdrawal of the Act as a whole, on the profession. The sooner it is done, the better would it be for all concerned. The staff continues to get and has to continue getting the concessions with all

grace and goodwill as agreed upon. Why the delay now?

None can do away without medicine and the art of medical practice but where and how would the profession get assurance for an independent vocation. Let not the society allow the art to turn into a commercialised business regulated by prohibitory laws and regulations as for any other business.

D.M.A. HEALTH INSURANCE SCHEME :

In the socialistic secular state, to ensure health of its people whatever we may plan, ultimately a national health insurance scheme will be able to solve the problem for all. Such a scheme would entail equal responsibily on the part of the medical profession and the beneficiaries—the later contributing on per capita basis and the former evolving a suitable scheme with the active participation of the profession—the scheme being organised on panel basis with a reasonable choice of his doctor by the patient. This would be the ideal but a beginning has to be made. The Association in right earnest has put before the society a scheme which if worked with the respect it demands, can be easily the forerunner of the type of national health service. Whereas the Government of India has instituted the C.H.S. for the Government servants and whereas the local administration has its own scheme of reimbursements, and whereas the medical treatment facilities for the public at large being very poor and insufficient, the D.M.A. has volunteered to fill the gaps. It has outstretched its hand of friendship and sympathy to the public but it is regrettable to report that the response from the future beneficiaries is very poor. We confess there has not been much publicity and propaganda by the association but it has made direct approach to many a institution and its large number of employees but still no ground is gained. The association is prepared to make necessary workable amendment but it expects the public to have confidence in the profession and trust the association to live upto its honour and prestige in meeting out the obligation under the D.M.A. Health Scheme. Could it not be possible for our government to offer their moral support to this venture in the national interest and to encourage the voluntary co-operation by the profession? In the matter of rendering comprehensive medical aid to one and all at very very nominal allowance, I would once again repeat that by paying Rs. 100/- a whole family is privileged to receive medical aid for full one year. A review of services insured under the scheme would be worth stating, viz., :

1. the general practitioners services in all localities of Delhi including domiciliary visit when necessary.
2. the specialists services inclusive of surgical operations of antenatal, postnatal and confinements in the hospitals only.
3. the routine diagnostic facilities viz., pathological, radiological as per schedule.
4. the hospitalisation (without diet) of all cases requiring indoor treatment inclusive of maternity case.
5. the drugs provided by the general practitioner inclusive of routine injections as part of treatment and other special drugs when necessary.
6. health education including—family planning, general hygiene, prophylaxis, etc.

It is upto the Government to be a silent spectator or to lend its patronage and blessing to the D.M.A. in this venture. It is worth the while for the government, the profession, the public alike to assess the merits and demerits of the scheme after working the scheme with genuine interest, mutual trust and faith. We believe it to be workable, helpful and the need of the day and commend it for the close scrutiny of the public.

The E.S.I. and the C.H.S. schemes in Delhi are both being run on full time paid staff whereas the D.M.A. offers the services on panel system giving the patient the advantage to choose his doctor. The government cannot enlarge these schemes to cover all the citizens in our state but the association can and is prepared to run its scheme based on panel system and fixed number of families being registered with each doctor in the scheme.

DELHI STUDENTS AND MEDICAL COLLEGES IN DELHI :

Who is a Delhi resident? This question has baffled all and will continue to do so, so long as we do not shed away provincialism which to my mind we cannot do for sometime, things as they stand today. The association clamoured for a medical collge for Delhi students who could not gain admission in other states and the government opened two colleges—in one admission is being done on an all India level and in the other for the union territory students. Is there any criteria by which those getting training from Delhi University be admitted to these colleges? We have to ask whether any other state medical college admits students from other states and how. Do the Delhi students find themselves eligible for admission in other medical colleges, if not, where should they apply if all the three medical colleges in our state have directly or indirectly to cater for the need of the states?

COLLEGE OF GENERAL PRACTITIONERS :

When we talk of academy of medical science to which only senior and highly qualified members of the profession are contemplated to be admitted thereby creating a class of the so-called "superiors" the feasibility, necessity and desirability of which is yet to be understood, in view of the several postgraduate institutions in the country. What is important is that the attention of these "Superiors" be directed to the lot of the general practitioners.

Why do we not face the problem of having a college of General Practitioners in our state? This is a necessity which when constituted would be a boon for the general practitioners in having refresher courses on an organised scale and thus raising the standard of the medical services epecially when our state is rampant with the Quacks—the so-called unqualified, untrained, uneducated practitioners who have the audacity to dabble into modern science without any check by the Government.

LEPROSARIUM AND CHILDREN HOME :

The news is welcome that the government is contemplating to build a modern leprosarium at Shahdara at the site of the existing one for which a substantial land and funds have been earmarked. Our only hope is that things would move at proper pace and the scheme put into its final shape, mobbed as our state is, with the multitude of lepers engaged in begging and other anti-social activities to the annoyance of the community. Another well meaning project being conducted by the Social Welfare Board of the Delhi Administration is the institution at Shahdara called the Children Home for the healthy children of lepers who have been segregated and are being given the benefit of civilisation and making them into useful citizens. It is hoped that the government will extend all its resources for the growth of such institutions.

MENTAL HOSPITAL :

A Mental Hospital is a crying necessity in our State and the sooner a modern unit is built the better it will be. With the stress and strain of the modern civilisation and the bustle and hurry of daily routine the incidence of psychosomatic illnesses are bound to increase,

as seen in the modern countries, for which the necessity is genuine.

SANITATION :

I cannot help but mention about the inexcusable continuation of unsanitary conditions in most parts of the city. There are some beautifully maintained patches here and there and it is nobody's authority to question the colossal waste of the otherwise unavailable money, on the decoration, redecoration and superdecoration of certain areas just because some distinguished foreigner guest or guests have to pass the way. Why do we feel shy of giving a uniform and proportionate concern, if not a priority, for the cleaning of the slums or near-slum areas in the city. When their turn comes for looking after, the finances appear to be nearly exhausted. What does this lead to, frustration, misery and sickness. Is it not the responsibility of the state to mop up the dirt, provide civic amenities, public urinals and latrines, parks, play grounds, arrange proper disposal of sewage, proper drainage system, adequate wholesome water supply and above all proper segregation, away from the city of the animals with adequate facilities for disposal of their excreta? Delhi is known for epidemics, e.g., encephalitis, jaundice, influenza, gastroenteritis, etc., and one wonders why more epidemics do not occur considering the state of unhealthy sanitary conditions.

FOOD ADULTERATION :

In view of the large concentration of the population in urban areas it will be easily realised that the food needed for them can no longer come straight from the factories to the table. There is the danger that adulterated foods and improperly prepared food stuffs may result in great damage to the health of the urbanites in particular.

Thanks to the Delhi Central Milk scheme when we could be assured of wholesome unadulterated milk. Our head hangs in shame at the unabated adulteration of all possible food stuffs with all possible nonsense. A look at the vast variety of these articles used for adulteration (if you had an occasion to see during the display at one of the exhibitions organised by the Health Department of our Corporation) will convince you how much we are at the mercy of these inhuman, inconsiderate and ruthless enemies of the public and offenders of law who engage themselves in these unsocial, unpatriotic practices. But the question we have to ask is whether the law is so strict as to so treat these offenders and "murderers" with the contempt and scorn and to serve them with the examplary punishments? What is needed is a positive programme to eradicate this social evil and thereby ensure safety of food and purity of all other edibles and thereby remove the misgivings from the mind of the public that nothing edible is available in Delhi in its natural pure form. This is not difficult but sincere efforts are needed by all concerned.

CONSULTATION OF D.M.A. :

In order to avoid unnecessary difficulties and with a view to carry the profession along, it is in the interest of the nation aimed at imparting facilities for medical aid at lower cost and making it available for all its citizens it becomes almost incumbent on the part of the government to consult the profession well in advance at the appropriate time while formulating health laws and rules and acts regulating the practice of Medicine; or planning medical and public health measures and medical education programmes, etc. Why is the administration hesitant of consulting the profession when it is a fact too well known that there is no dearth of efficient and useful talent outside its fold. Indian Medical Association is the articulate voice of the profession and is prepared to render its voluntary advice and guidance early enough.

REPRESENTATION OF D.M.A. ON LOCAL BODIES :

Is'nt it but proper for the authorities therefore, to give due representation to the Delhi Medical Association on the civic bodies like the Corporation, the educational bodies like the universities, the various public health bodies and the institutions. Strangely enough the D.M.A. representation on the advisory committees of the Irwin Hospital and the Victoria Zanana Hospital and the Tub. Association was withdrawn a few years back and till today has not been restored. Let not the medical profession make a programme of making their voice heard from the political platforms though I feel today conditions warrant this measure specially on the part of our profession because during the present regime of administration the more vocal and coercive your approach is, the more chances there are, of your being heard, your views considered and appreciated.

NEW BUILDING FOR THE D.M.A. :

Thanks to the foresight of the founder members and those that followed them, through whose efforts and sacrifices the D.M.A. has had its home in the existing premises. This home has now outlived its utility and actually is a perpetual pointer to the member today, that we must think, plan and build a new home worthy of the fair name of the association and its members. We have today ten times the number of members as existed when the present hall was built and if we cannot build a new and spacious unit at the earliest, we would be doing injustice to our institution and certainly not setting a good example for the future members or rather in fact overlooking the devotion and loyalty of the 70 and odd members who had built the present hall and had secured sufficient land as far back as 1930 visualising the growth of the D.M.A. to its present state.

Can we not take a pledge today that for the next conference we would not meet in this improvised hall but would rather celebrate our annual conference in the new auditorium. There is a little apathy and disinterest shown by the members but this apparent inactivity is not real and lasting. With the foundation stone truly laid by our veteran Lt. Col. Amir Chand it shall be our cherished desire to erect this building and thereby honour our trusted soldiers who have nursed this association with their sweat and blood right from infancy. My humble request to you all, is to do the best you can, to make it possible for the building to come up during this year and I appeal to your loyalty, devotion, philanthropy, to grab, at this opportunity to serve the association to enable it to continue to serve the profession in its own silent way, as hitherto.

INDIAN MEDICAL ASSOCIATION HEADQUARTERS BUILDING :

Side by side with this we the members of the Indian Medical Association through the D.M.A. have to discharge our obligation to the parent body—the I.M.A. Serving as we are, the I.M.A. in various ways, being at the place of the headquarters, the responsibility of putting our might in the cause of the I.M.A. becomes more imperative, important and exact and substantial. I refer to the challenge that the I.M.A. has to face i.e. of the construction of the headquarters buildings at the Indraprastha Estate, Mathura Road, New Delhi, the foundation stone of which was laid by our Rashtrapatiji Dr. Rajendra Prasad. The Government of India has been generous in giving a plot of land at nominal price and also of meeting 25 per cent of the cost of the I.M.A. building which would come to about ten lacs. It is but honourable and keeping with the traditions of the D.M.A. that its members would rise to the occasion and contribute much more than their share to pool with that of all the members of the I.M.A. in the 650 branches throughout the length and breadth of this country. If we all do our duty it is hoped that the I.M.A. building would be ready by the end of 1962 when the General Assembly of the

World Medical Association meets in New Delhi at the invitation of the Indian Medical Association."

RESOLUTIONS

The following resolutions were passed at the conference :

I. The Government of India offers approximately 100 Scholarships to medical graduates for prosecuting post-graduate training in Delhi. Applications for these scholarships are invited from all over India. These applications are received in the Office of the Director General Health Services where the selection of candidates is made. It is understood that the criterion of selection is the number of marks the candidate has obtained in the University examination in the subject of his choice for post-graduate training. Even the candidates who previously used to register themselves with the Delhi University direct for post-graduate training through the various institutions affiliated to it are, it seems, now required to apply to the Director General Health Services irrespective of whether they are to be granted any Government scholarship or not.

This procedure, in the opinion of this Conference apart from other obvious objections cut at the very root of the fundamental principle of post-graduate training, namely, the student teacher relationship. According to it, the teacher who should be the prime selector of a candidate whom he is to train in his speciality, has no voice at all in his selection which is made in the Office of the D.G.H.S. The determining factor is at least 60 per cent of the marks in the University examination for the degree of M.B., B.S., in the subject of specialisation. This criterion is absolutely unrealistic and arbitrary for the award of marks in any university examination is certainly not such a fine chemical or electronic balance which would differentiate between 60 and 59.

The only proper way of selecting a candidate for postgraduate training is through a selection committee appointed by the Delhi University who would attach due importance to the recommendation of the teacher under whom he is going to work. The principle who pays the pipe calls the tune should not apply. The Government, simply because it is to give a scholarship, should have no voice in the selection.

Further, it is understood that the Delhi University requires a candidate to give up his employment or to take leave for two years to undergo training. While in some countries candidates are encouraged to learn and earn, the Delhi University requires them to learn and starve. This Conference is of the opinion that a restriction of this nature is absolutely uncalled for and should be withdrawn forthwith. All that is necessary is certification by the teacher or supervision that the occupation of the candidate does not interfere with the prosecution of his training in any way.

This Conference, therefore, resolves that it be recommended to the Government of India and the Delhi University that the selection of medical graduates for post-graduate training in Delhi be entrusted to a selection committee to be appointed by the Delhi University for the purpose and the main criterion for selection be the recommendation of the teacher with whom the candidate is to work and not solely the number of marks as at present.

It further resolves that no candidate should be required to give up his occupation or to take long leave so long as it is certified by the teacher under whom he is working that his occupation does not interfere with the prosecution of his training in any way.

II. This Conference draws the attention of the various Corporations and local bodies etc. to the recommendations made by the I.M.A. regarding the pay scales, status and service conditions of doctors in Government service including the C.H.S., E.S.I.C., Railways, Government, the various Corporations and local bodies etc. to the recommendations made by the I.M.A. regarding the pay scales, status and service conditions of doctors in Government service including the C.H.S., E.S.I.C., Railways, various corporations and local bodies etc. and requests them to accept the same at the earliest.

III. This Conference notes with regret that the Delhi Medical Association the only representative organisation of the medical profession in Delhi has not been taken into confidence in framing the 5 year health plan by the Delhi Administration nor has any of its representative been coopted in the 5 year health plan committee of the Delhi Administration inspite of the D.M.A. offering its co-operation in this respect.

It urges upon the Government to allot for purposes of health at least 15 per cent of the total outlay reserved for the territory of Delhi.

IV. This Conference urges upon the Delhi Administration to take the Delhi Medical Association, the only representative organisation of the medical profession in Delhi, into confidence, well in advance while formulating Acts and regulations concerning health and the medical profession.

It further urges upon the Government to ensure due representation of the D.M.A. on various local and statutory bodies such as Municipal Corporation, L.I.C.E.S.I. corporation, Tuberculosis Association, Educafional and medical institutions and the University.

V. This Conference strongly objects to the inclusion of Drugs and medicines and X-ray films and apparatus and Laboratory apparatus in the sales tax act, and urges upon the Government to completely exempt the above mentioned items from the levy of sales tax on obvious humanitarian grounds.

VI. *Private Dairies in Delhi and New Delhi.* The so called dairies, within the Municipal limits of Delhi and New Delhi are not only intolerably unsightly in the Metropolis of India but are also a great danger to the health of the public in as much as they are very fertile grounds for the breeding of flies and mosquitoes, and they keep the surrounding areas extremely insanitary.

The Delhi and the New Delhi Municipal authorities have been promising the public for several years, that these pocket of disease and adulteration would be removed outside the city-limits "soon" but they continue entrenched in their original places, year after year, without any sign of their removal.

Therefore, this Conference strongly urges on the Delhi and the New Delhi Municipal authorities and the Delhi Administration to remove these "islands of sepsis and squalor" far out of the populated areas, if they cannot be permanently closed down at present.

VII. *Eye Bank.* There are millions of unfortunate blind and semi-blind women, men and children in our country whose blindness is curable and yet they are groping through life in darkness. These are the persons who are victims of corneal opacities, resulting from trachoma, small-pox, injuries and other causes of ulceration of the cornea. Corneal grafting is the only remedy for these unfortunate members of the society. After replacement of the opaque, blinding corneal tissue by clear corneal grafts these fellow citizens can be made useful to themselves and to the society. To attain that objective we urgently need BANKS in all big cities and specially trained eye surgeons, who can deal with such cases efficiently and expeditiously. One such Eye bank has been recently opened in Bombay under the corneal Grafting Act of 1957.

The Conference, therefore, appeals to the Central Government Delhi Administration, the Delhi and the New Delhi Municipal Authorities and philanthropists of Delhi to :—

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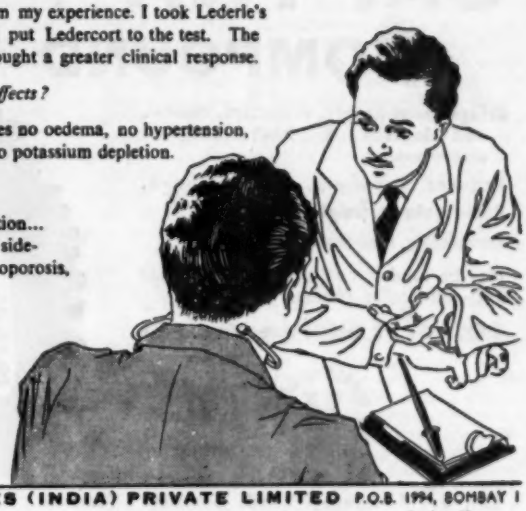

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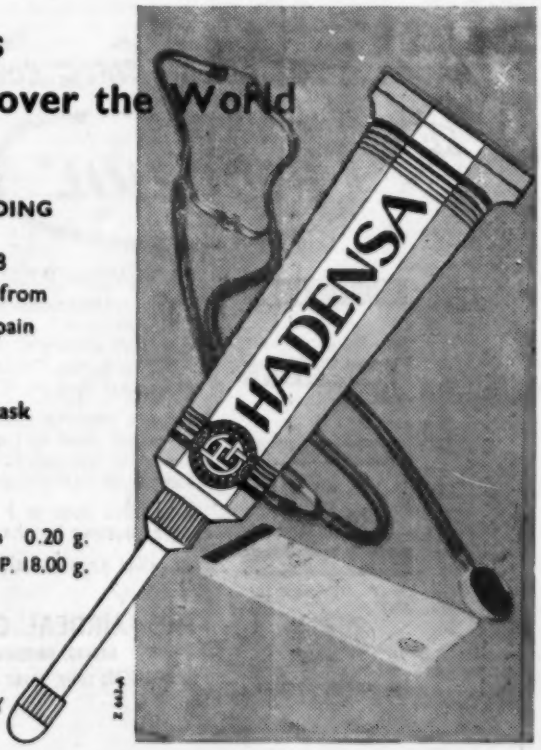

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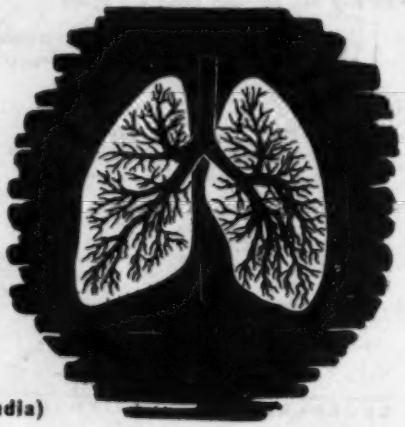

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VIII. *Quackery*: This Conference urges upon the Government to enact suitable legislation for the prevention of quackery. It further urges restriction on the use of prefix, Doctor or Dr. to persons qualified in modern system of medicine and by these people on whom Doctorate is conferred by a University.

The use of words "Registered Medical Practitioner" "Physician" "Surgeon" should be confined to the qualified medical practitioners duly registered under the Medical Council Act 1933. Medical Practitioner other than those should specify the system they practise such as Ayurved, Homoeopath, Unani etc. after words Registered Medical Practitioner or R.M.P.

IX. Social and preventive medicines has very rightly taken its due place in the care of health of the population. It necessitates close liaison between the health personnel engaged in hospital and domiciliary treatment and medical social workers. Some hospital authorities have realised the importance of this and employed medical social workers but such hospitals are few and far between and the number of medical social workers employed in them is grossly inadequate.

This Conference urges on the Government of India, the Delhi Administration, the territory of Delhi to employ properly trained medical social workers in all hospitals under them in the ratio of at least 3 for a 500 bedded hospital.

X. On the recommendation of the Central Council of Health, the Government of India is considering to regulate and register medical and public health laboratories, dental clinics, nursing homes and physiotherapy centres and the Medical Council of India has informed the Government that such a control is essential and that it is desirable that it should be done through central legislation.

Contrary to the recommendation of the Medical Council of India but in conformity with that of the Working Committee of the Indian Medical Association this Conference resolves that while the Govt. may regulate and register nursing homes, and also physiotherapy centres run by non-medical persons, it may not regulate and register medical and public health laboratories and dental clinics run by duly qualified medical persons as that would be an encroachment on their inherent right to practise any branch of medical science they like without any such control or interference by the Government.

XI. Communal sanitation in Delhi, including New Delhi and suburbs, continues to be of almost primitive nature, there are no public latrines and urinals anywhere with the exception of a few areas and wherever they are, they are seldom kept in proper condition because of lack of staff, with the result that people ease themselves freely and indiscriminately at all times of the day and night in public places along side thoroughfares and railway lines, garbage and human and animal excreta which are not adequately disposed of provide ample facilities for breeding of flies and flyborne diseases are common. Water supply is deficient both in quality and quantity, there is hardly any article of food and drink which is not moderately or grossly adulterated or tainted with dyes some of which may be injurious to health and slum areas, if anything, seem to be on the increase.

This Conference resolves to bring this most unsatisfactory state of affairs, which is a great slur on the metropolis of our country, to the notice of the Government and the Local Bodies concerned and to urge on them to take early and effective steps to remove the above mentioned defects. The Delhi Medical Association wholeheartedly extends its cooperation to the Government and the local bodies for the steps to be taken and schemes to be formulated by them in consultation with the Association.

XII. This Conference notes with great concern the recent amendment to the Indian Pharmacy Act as passed by the Parliament giving sanction to the State Governments to "declare by a general or a special order made by the State Governments any person or persons as practising the modern system of medicine for the purpose of this Act.

It further points out that this amendment would allow persons (who do not hold registrable medical qualifications as defined in the Indian Medical Council Act) to be registered as "persons practising the modern scientific system of medicine for the purposes of the Act (The Pharmacy Act 1948-Amendment bill 1958) and whereas the definition of Medical Practitioners should be uniform for all Acts enacted by the states or the Central government as to have different definitions for purposes of different Acts and by empowering the state governments to declare by a general or special order any person or persons as practising the modern scientific system of medicine will lead to chaos i.e. different state governments giving recognition to different types of peraons viz. Homoeopaths, Vaids, Hakims, Compounders etc.

And whereas the Medical Council of India is the only competent body for registration of practitioners of modern medicine and that the Council under this act is being byepassed and recognition for the purpose of this Act is being left in the hands of the state governments and also as in the event of all types of people having been declared by different states as "Registered Practitioners" would have repercussions on other Acts and Rules such as the Drug Rule and thereby making available to all and sundry the dangerous drugs etc.

This Conference lodges its strong protests against this amendment and demands immediate reconsideration and maintenance of status quo and also to define "Registered Medical Practitioner" as that duly registered with the various medical councils in India constituted under the Indian Medical Council Act".

XIII. For the vast majority of population which is too poor to pay even a small contribution, medical care has to be completely free or non-contributory and it has to be provided by the state. But those who are in a position to make some contribution, large or small should be encouraged to do so in order to dispel the pauper mentality and the delusion that the public purse is bottomless which are inherent in an entirely free service. It is more consistent with the dignity and independence of a man that he shall be enabled to apply for something that he has purchased with his own funds. For that purpose contributory system has been introduced in one form or another in some countries. Under such a system benefit becomes a right and not a concession. Such systems have as a rule, to be heavily subsidised. In Delhi the Government of India has established a contributory health service which it is subsidising heavily. But that service, apart from the employees State Insurance Corporation meant for industrial workers, covers only the government of India employees and the members of the Parliament. For these not covered by it the Delhi Medical Association has undertaken to introduce a health insurance scheme and it expects the government, the Corporation of Delhi and Municipal Committee of New Delhi to help it in every possible way.

This Conference resolves to request the Government of India, the Corporation of Delhi and the Municipal Committee of New Delhi to render all possible and legitimate help, to the Delhi Medical Association to enable it to make its health insurance scheme a success.

XIV. This Conference strongly resents the unnecessary restrictions imposed on the purchase and transport by the medical profession of important drugs for emergency use like Pethidine, Morphine etc. under the Excise Rule. It urges upon the authorities to immediately remove this restrictions.

XV. The Conference urges upon the Life Insurance Corporation of Delhi to allow the Medical Examination of Life Insurance cases to all the registered medical

practitioners of Modern Medicine, instead of restricting to a few selected doctors.

XVI. This Conference urges upon the Government of India to suitably amend the Indian Medical Council Act in accordance with the memorandum already submitted by the Indian Medical Association in the year 1956, so as to accord due representation to the Indian Medical Association and ensure the provision of a common schedule both for the medical Licentiates and Graduates.

BRANCH NOTES

ASANSOL BRANCH—A conference of the medical practitioners of Asansol sub-division was held at Asansol. It was attended by more than 250 doctors. The conference was presided over by Dr. H. N. Mukherjee, president, I.M.A., Asansol Branch. Discussions were held on multifarious problems facing the medical practitioners of the area, and also on inadequate arrangements for medical aid, insanitary conditions of Asansol and its surroundings, inadequate water supply etc. The conference passed the following resolutions :—

1. It is resolved in the conference that the Asansol Sub-division be raised to the status of an Industrial District with headquarters at Asansol.

2. The conference requests all doctors in this area, who are not yet members of the I.M.A. to enroll their names as members and help the Association to take its rightful place in the society.

It further draws the attention of the members in particular and public in general to the necessity of erecting a building of its own with a lecture hall and medical library therein, to strengthen the organisation and keep the members of the profession abreast of the recent development in Medical Science.

3. The conference draws the attention of the authorities concerned to the paucity of hospital facilities in the Sub-division, and the existing Government L. M. Hospital with its present staff and equipment which is quite inadequate to cater to the needs of this fast growing area, and resolved that the present Sub-divisional Hospital be raised to the status of a District Hospital with immediate effect, the site of the same remaining unchanged.

It further resolves that, other existing hospitals in this Sub-division, at Raniganj and Barakar, be upgraded. Besides there should also be medical facilities in each and every thana of this area.

4. The conference of the members of the medical profession of Asansol Sub-division, including those of the mining settlement, notes with satisfaction, the endeavours of West Bengal Provincial Branch of the Indian Medical Association, with regard to the service conditions of Medical Officers engaged in Coal-industries in West Bengal.

The conference welcomes the recommendations of Coal Mines Labour Welfare Committee I.M.A. (Central) for a unitary centralised medical service by an autonomous board, under the Government of India, constituted by representatives of—(1) Government of India, (2) Government of West Bengal, (3) Employers' Organisation, (4) Employees' Organisation, (5) Indian Medical Association, (6) Other interests if any to be financed by contributions from (a) Government of India, (b) Government of West Bengal, (c) Coal Mines Welfare Organisation, (d) Municpalities and District Boards in the mining settlements, in order to achieve efficient, planned and well co-ordinated Medical and public health service in the region.

With this in the background the conference resolves to recommend to Bengal Provincial Branch of the Indian Medical Association, to peruse the report of the Coal Mines Labour Welfare Committee (I.M.A. Central) with a view to revise the scales of pay of the medical Officer in Coal Fields, as per the above recommendations referred to, and to take up the issue in all earnestness with the appropriate authorities concerned.

The conference notes with deep concern the dissatisfaction that the recommendations referred to above did not receive due consideration by the Government of India. In view of the absence of a suitable scale of pay and status of the Coal Mines Medical Officers, the conference feels that the award of the arbitration in 1959 by Sri A. Das Gupta in respect of Colliery Medical Officers falls far short of the recommendations of the Indian Medical Association and notes with regret that even this has not yet been implemented.

5. The conference of the Indian Medical Association, Asansol Sub-division learns that, the Central Pay Commission in their report of 1957-59, has recommended the following alternative scales for the Assistant Surgeons in Central Health Service :—

(a) Rs. 325-25-500-30-590-EB-30-800, plus non-practising allowance

or

(b) Rs. 475-25-650-30-740-EB-30-950, consolidated.

But this conference views with great concern that the Railway Doctors have been differentially treated though they are under the Central Government.

Pay for the Railway Doctors :
Rs. 325-15-425-20-575, with practice.

As embodied in para 11 of the recommendations quoted above, the Pay Commission report is emphatic in their views on page 585, para 60, which reads as "Doctors who are in the whole-time employment of the Central Government for providing medical attendance and treatment to Government servants, should not be permitted private practice".

It is true that hardly a fraction of the total strength of doctors get opportunity to do private practice for heavy pressure of work in the hospitals, and therefore, Railway doctors in a body have submitted memorandum for consolidated pay scale debarring them from private practice.

The conference urges upon the Central Government to implement an adequate consolidated pay scale for the Railway doctors, taking in consideration that, they are in whole-time employment and their services are most essential for amelioration of the sufferings and ailments of millions of poor employees, and maintaining efficiency of people engaged in essential services of the country.

6. The conference of the Sub-divisional Medical Practitioners thinks it necessary to have proper and useful planning for the development of this fast growing area. It also thinks it necessary that the various bodies which are engaged in doing so, should be broadbased as far as practicable and to achieve the same, it resolves that apart from other representation there should be at least one representative from the Indian Medical Association in each of the following bodies : (a) Asansol Mines Board of Health, (b) Coal mines Welfare Organisation, (c) Telephone Advisory Committee, (d) Sub-divisional Hospital Committee, (e) Asansol T.B. Association, (f) Asansol Leprosy Association, (g) Districts and Subdivisional Development Committee, (h) Tagore Centenary Committee.

BALLIA BRANCH—A meeting was held on 21-12-60 to celebrate the Family Planning Day with Dr. Charlee, D. M., as president. Dr. Charlee, Dr. Ved Ratna, Dr. S. P. Saxena, Dr. C. L. Gupta, Dr. H. M. Bhatnagar, Dr. A. S. Gupta, Dr. I. W. Herbert spoke on the occasion.

On 24-12-60, the members had the honour to have Padma Shree Dr. M. P. Mehra, C.M.O., Sitapur Rye Hospital as its chief guest at a lunch.

BAREILLY BRANCH—A clinical meeting was held on 16-1-61 in the district hospital. Dr. C. M. Aga presided. The members condoled the death of Dr. (Mrs.) A. B. L. Mathur and Dr. Sewa Ram Bhatnagar. The

first issue of the Bulletin published by the branch was presented to the members. Dr. S. C. Srivastava of the district hospital spoke on Some Aspects of Coronary Heart Disease and their Management.

BIHAR STATE BRANCH—The annual council meeting of the State Branch was held on 18-11-60 at the conference pandel. Forty eight members were present. The members condoled the death of Dr. Shital Prasad Singh (Darbhanga), Dr. Deo Narayan Prasad (Khagari), Dr. N. Bose (Chopra), Dr. K. D. Mallick (Begusarai), Dr. L. N. Lal (Daltonganj), Dr. Bidhan Mazumdar (Patna), Dr. D. K. Dutta (Monghyr), Dr. A. K. Ghosh (Ranchi), Dr. N. Pal (Patna), Dr. K. C. Dutta (Madhubani).

The proceedings of the last meeting, the annual report, the report of the Bihar Health Week, the accounts of the association, and of Bihar Health Week, 1960, the budget with modification were adopted. Office-bearers for 1960-61 were elected with Dr. A. K. Sen as secretary ; Dr. S. Banerjee, Dr. S. Bhattacharyya, Dr. R. P. Sinha, Dr. B. N. Roy as joint secretaries ; and Dr. A. K. Dutta, Dr. C. M. Jha, Dr. Ramawatar, Dr. P. K. Dutta as asst. secretaries for headquarters, North Bihar, South Bihar and Chotanagpur respectively ; Dr. S. Prasad as hony. State treasurer; Dr. B. Mukhopadhya as editor; Dr. K. K. Sinha and Dr. B. P. Jamuar as associate editors; Dr. S. Samaddar as business secretary; Dr. A. K. Sen, Dr. P. N. Sinha, Dr. S. Bhattacharyya as members of the Central Working Committee, with Dr. N. P. Tripathi, Dr. S. Samaddar, Dr. S. N. P. Agrawal as alternates; members for the following committees were elected: The Bihar Health Week Committee, Journal Committee, Pay Scale Committee; Library Committee, State Health Council, St. John's Ambulance Association, Red Cross Society of India and Rules Sub-Committee.

BONGAON BRANCH—The annual report of the branch for 1959-60 shows that the branch earned popularity for rendering various types of social services. Office-bearers for 1960-61 are: Dr. J. R. Dhar, president; Dr. I. Sengupta and Dr. D. N. Mukherjee, vice-presidents; Dr. A. Sinha, secretary; Dr. A. Chatterjee, asst. secretary.

DHAKURIA BRANCH—The 3rd Annual Socio-Medical Conference was held under the auspices of I.M.A. Dhakuria Branch on 27-11-60 at Dhakuria with Dr. B. C. Chakraborty in the Chair. Dr. Souren Sengupta, Provincial Secretary, I.M.A. inaugurated the conference, with an impressive speech. After "welcome" address read by Dr. R. B. Chowdhury, Dr. A. C. Sengupta described the activities of the branch in his annual report and placed the problems both medical and social to the conference for discussion and decision. After presidential address, delivered by Dr. B. Chakraborty, Sri Vivekananda Mukherjee, an eminent journalist as chief guest delivered his address. After several speeches both from the public and the medical profession, members were served with some amusements, tea and refreshments.

Dr. A. C. Sen Gupta, Secretary, Dhakuria Branch, I.M.A. Addrssing the Meeting

A general meeting of the branch was held on 3-12-60. Capt. B. C. Chakravarti presided. Dr. A. C. Sengupta, secretary of the branch discussed matters relating to the last Annual Socio-Medical Conference and regretted absence of many prominent invitees in the conference. It was decided to raise the membership by a systematic drive.

A condolence meeting of the members of the medical profession and the public was held under the auspices of the branch on the sad and sudden death of Dr. Souren Sengupta, the Hony. Provincial Secretary of the Bengal State Branch, I.M.A. Dr. B. C. Chakravorty presided. Dr. A. C. Sen Gupta, secretary of the branch in moving the resolution, gave details of Late Dr. Sen Gupta's life and activities. A copy of the resolution was sent to the members of the bereaved family.

FAIZABAD BRANCH—A meeting of the branch was held on 26-12-60. Dr. S. K. Mukerji presided. The government circular about the sale, possession and keeping of some drugs was discussed and the members protested against it. Some case reports were discussed.

A meeting was held on 30-11-60. Dr. S. K. Mukerji presided. A discussion was held on Gastro-enteritis. Dr. S. K. Mukerji explaining on the Observance of Family Planning Day on 18-12-60. A sub-committee was formed with Dr. S. K. Mukerji as president and Dr. (Mrs.) Banerjee as its secretary.

A meeting of the branch was held on 28-1-61 at the Masonic Lodge, Faizabad. It was decided to hold a special meeting for Anti-Leprosy Day on 30-1-61 in the district hospital and to hold a zonal conference on 26-2-61. Dr. S. P. Agrawal of Gorakhpur spoke on Electro-Convulsive Therapy in Mental Cases.

FEROZEPORE BRANCH –A clinical meeting was held on 27-1-61 at the Military Hospital, Ferozepur. Lt. Col. K. S. Pillay presided. Capt Chakrawati demonstrated a case of Volvulus Mesentrica. Major Chopra presented a case of Haematomesis. Lt. S. N. Bhadwar demonstrated 2 x-ray films of Haemoptesis cases.

GHUGUDANGA BRANCH—The executive committee meeting of the branch was held on 4-12-60. Dr. P. B. Ghosh was in the chair. Five members were present. The members discussed steps to increase membership of the branch.

An extraordinary general meeting was held on 4-12-60. Dr. P. B. Ghosh presided. Nine members were present. The meeting condoled the death of Air Marshal S. Mukherjee and Minister H. C. Naskar. The audited accounts were approved. The executive committee empowered the secretary regarding amounts of money he can spend on a single item and he can hold as an imprest fund.

GURDASPUR BRANCH—In a meeting of the branch held on 15-1-61 in the T.B. Clinic, Gurdaspur, the following were elected office-bearers for the year 1961-62 :

President—Dr. S. P. Jain, P.C.M.S.; Vice-president—Dr. Natha Ram Kohli; Secretary—Dr. Balwant Singh Sachdev; Joint secretary—Dr. Pritam Singh Hundel; Provincial Representative—Dr. Balwant Singh Sachdev.

HILSA BRANCH—A meeting was held on 11-12-60 with Dr. L. N. Sinha in the chair. Twelve members were present. Office-bearers for 1960-61 were elected with Dr. R. N. Ray as president; Dr. L. N. Sinha, Dr. Zafar Alam and Dr. S. N. Modak as vice-presidents; Dr. M. P. Sinha as secretary; Dr. Hussain Ahmed as treasurer; members of the State Council—Dr. M. P. Sinha, Dr. S. N. Sinha and Dr. G. S. Haque and members of the Central Council—Dr. M. P. Sinha. It was decided to hold the Health Week from 5-3-61 in a befitting manner.

JADAVPUR BRANCH—The members of the branch and the medical staff of the K. S. Ray T. B. Hospital, Jadavpur, condoled, in a meeting held on 24-1-61, the death of Dr. Souren Sen Gupta, the hony. secretary of the Bengal State Branch, I.M.A.

JAGRAON BRANCH—The following office-bearers have been elected for the branch for 1960-61 : president—Dr. Jagdishar Singh Gill; secretary—Dr. Daljit Singh; joint secretary and treasurer—Dr. Avtar Singh Gill; secretary, scientific session—Dr. G. S. Pablu.

JAMNAGAR BRANCH—A dinner meeting was held on 20-1-61. Forty three members were present. Dr. L. G. Eddey, WHO representative S.E. Asia gave a lecture on Child Health.

A meeting was held on 28-1-61. Twentynine members were present. Election of the vice-president, G. S. & K. Territorial branch took place. The following clinical cases were presented: (1) Cases of Hereditary Ataxia, probably Atypical Friedreich's by Dr. P. R. Bhat, (2) A Case of Chronic Cholecystitis with Choledolithiasis by Dr. H. L. Patel, (3) A Case of Tuberculosis of Caecum and Ascending Colon by Dr. H. C. Shah, (4) A Case of Chronic Intussusception by Dr. G. H. Upadhya. Dr. P. P. Sheth also spoke (5) A Case of Procidentia with Multiple Stones in Urinary Bladder by Dr. S. R. Parikh. The cases were demonstrated by x-rays, pathology specimens and slides.

JULLUNDUR BRANCH—The annual meeting of the branch was held on 23-10-60, in Gulab Devi Tuberculosis Hospital, when Dr. P. N. Kapur, hony. secretary, read the report which was adopted. The following were elected office bearers for the year 1960-61: President—Dr. L. R. Dongrey; Vice-president—Dr. K. K. Pasricha; hony. secretary—Dr. P. N. Kapur; hony. treasurer—Dr. B. D. Manon; joint secretary—Dr. Romesh Mehta; provincial representative—Dr. R. R. Larokia, Dr. B. D. Aggarwal and Dr. Dina Nath; central representative—Dr. Ram Rakha Dhir.

Altogether 19 meetings were held, out of which three were executive and one emergent.

The following addressed the members of the association.

1. Dr. Vidya Sagar, Medical Superintendent, Mental Hospital, Amritsar on Advances in Psychiatry from point of view of general practitioner, 2. Dr. K. S. Grewal, Orthopaedic Surgeon, Medical College, Amritsar on Back Ache and its Treatment, 3. Dr. P. N. Chhuttani, Medical College, Amritsar on Amyloidosis, 4. Dr. Partap Singh, Civil Surgeon, Jullundur, on Some Aspects of Adrenal Secretions and 5. Some Observations on Aetiology of Enlarged Prostate, 6. Dr. Beryl Howie, Brown Memorial Christian Medical College, Ludhiana, on Modern Conception of Third Stage of Labour. 7. Dr. H. S. Bawa, M. S. on Appendicitis, 8. Dr. D. K. Duria Swami, Safderjung Hospital, New Delhi, on Experimental Causation of Congenital Skeletal Defects and its significance on Orthopaedic surgery, 9. Dr. Harcharan Singh, Medical College, Amritsar on Tropical Eosinophilia, 10. Dr. M. L. Aggarwal, Radiologist, Civil Hospital, Amritsar on Radiological Diagnosis of G.I. Tract with slides, 11. Major Sita Ram, Medical Specialist, Military Hospital, on Early Clinical Menifestations of Ischaemic Heart Disease, 12. Major Chowksey, Military Hospital on Obstetrical Problems in Daily Practice, 13. Lady Doctor K. K. Kaushalya on Ruptured Ectopic Pregnancy, 14. Prof. Ganpat Rai on Causation and Cure of Mental Disease.

The following cases were demonstrated in the clinical meetings.

Hypopituitarism, Cervical Rib, Cancer Prostate with secondaries, P.U.O., Buerger's disease, Subluxation of Cervical Spine, Obstructive Jaundice, Scleroderma, Hydatid Cyst of Spleen, Mass in Abdomen, Congenital Heart Disease, Myeloid Leukaemia, Combined Gangrene of Fingers and Toes, Alcoholic Peripheral Neuritis, Charcot's disease, Hypernephroma with secondaries in bones, Giant Cell Epulis, Thyroid Adenoma, Meckel's Diverticulum giving rise to obstruction, Subacute Bacterial Endocarditis.

A clinical meeting was held on 27-11-60 in Civil Hospital, Jullundur, when the following cases were discussed and demonstrated.

(i) Two cases of Trichobazor, (ii) Meckel's Diverticulum with a Sinus at the Umbilicus, (iii) Duodenal Perforation.

A meeting of the branch was held on 13-12-60 to bid farewell to Dr. Partap Singh, Civil Surgeon, Jullundur, the president of the branch for the past year, on the eve of his transfer. Dr. H. S. Bawa presented two cases of Fracture Femur.

A clinical meeting of the branch was held on 8-1-61 in Civil Hospital, Jullundur, when cases of (i) Gangrenous Intussusception and (ii) Perforated Injury of Spleen were presented and discussed. The hony. secretary welcomed Dr. Man Mohan Singh, Civil Surgeon, Jullundur.

All the meetings were largely attended.

KALNA BRANCH—The annual report of the branch of 1959-60 shows that there were 10 members on the roll. Clinical discussions were held during the year on Filariasis, Childrens' Diseases and Hypertension by Dr. S. C. Mallick. A donation of Rs. 60/- was sent to the provincial branch for relief of the Assam Refugees.

KOLHAPUR BRANCH—The annual general body meeting of the branch was held on 28-12-60. Reports and accounts were adopted. Office-bearers for 1960-61 were elected with Dr. L. J. Kulkarni Nagaonkar as president; Dr. V. V. Gogate as vice-president; Dr. C. R. Shah as hony. secretary; Dr. R. B. Mulik as hony. jt. secretary and treasurer.

LUCKNOW BRANCH—In the monthly meeting of the branch held on 29-1-61, Dr. R. N. Gupta, Skin Specialist, K. G. Medical College and in-charge, Leprosy Hospital, Lucknow, gave a talk on Leprosy. The talk was illustrated with coloured slides and actual cases depicting various forms of the disease and it was very much appreciated by the members. An appeal was also issued to members to contribute to the Anti-Leprosy Day. On 30-1-61 a film show was arranged at the Leprosy Hospital for the recreation of its inmates.

MONGHYR BRANCH—The members of the branch assembled in a meeting on 1-2-61 to mourn the loss in the sad demise of the Chief Minister of Bihar, Dr. Srikrishna Sinha. Also they expressed their deep sympathy to the members of the bereaved family.

NELLORE BRANCH—An ordinary general meeting was held on 28-1-61 with Dr. K. M. Mathew, vice-president, in the chair. Dr. Sam G. P. Moses of Government General Hospital, Madras, gave a lecture on A Few Aspects of Diabetes Mellitus.

NILGIRI BRANCH—The monthly meeting of the branch was held on 14-1-61 at Pasteur Institute, Coonoor. Dr. D. S. Chandrasekhar, vice-president, presided. Dr. M. Srinivasan of Kasturba Medical College, Mangalore, spoke on Problems and Pitfalls in the Early Diagnosis of Malignant Disease. Films on Surgery in Chest Diseases and Body Frame work were shown.

NIZAMABAD BRANCH—A meeting was held on 27-11-60. Dr. Gulam Nabi presided. Dr. Gulam Nabi demonstrated (1) a case of Pyosalpinx, Hydrosalpinx and Uterine Fibroid operated successfully, (2) Cerebral Embolism 3 weeks after delivery. Dr. Razzack demonstrated a child of Oxycephaly—a congenital anomaly. Dr. Manoramma Asthana demonstrated 2 cases of cholaemia treated with Lev. 52, B. Complex, Glucose and Corticosteroids.

A clinical meeting of the branch was held on 30-2-60 at District Headquarters Hospital, Nizamabad, under the chairmanship of Dr. Gulam Nabi. The following cases were demonstrated:

Dr. Rama Rao, gave details about the recent B.C.G. vaccination at Nizamabad with statistics; Dr. Razzack demonstrated two cases of Cerebral Thrombosis treated successfully by anti-coagulants. He demonstrated one case of Hypertensive Encephalopathy also; Dr. Gulam Nabi demonstrated a Congenital Atresia of Vagina with successful Plastic repair. He demonstrated a case of Inguinal Hernia which operated and found studded with Tubercles. Then he demonstrated two cases of successfully operated old Ectopics.

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* *Food Science 6 (10) 241*
Indian Journal of Pediatrics, 26 (139), 290

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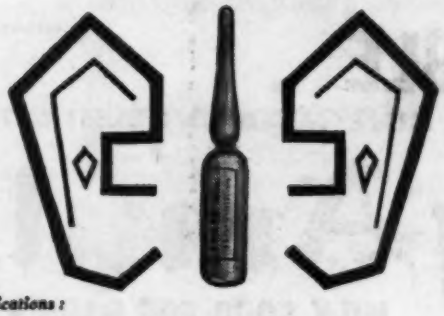

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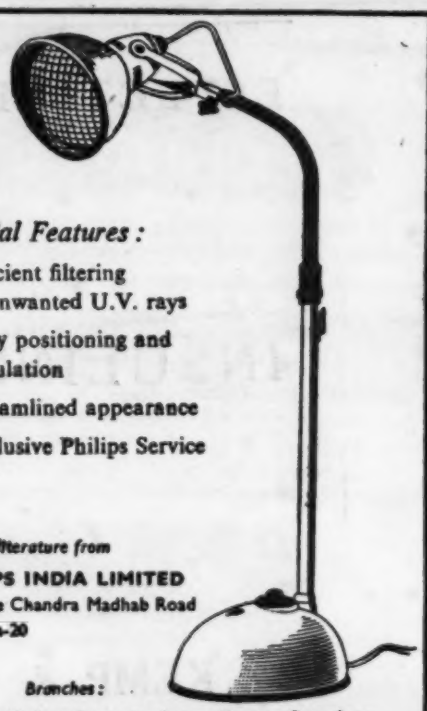

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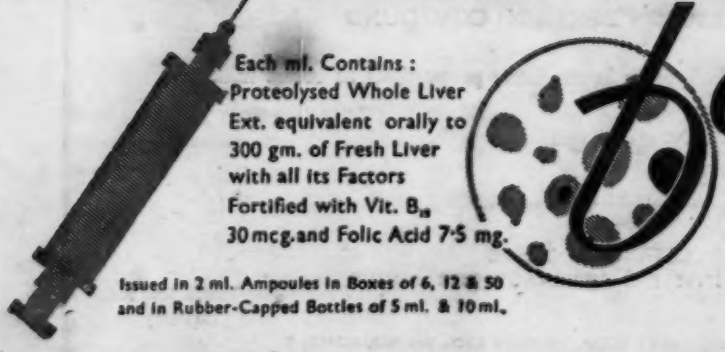

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